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Architecture at the Paris Salon.

TO go from the architectural room at the Royal Academy to those of the Salon furnishes a striking contrast. At the Academy room everything is on a small scale, and perspective views, architectural pictures, are in the majority. At the Salon they are so rare as to be a subject of remark when one encounters them. Large geometrical drawings, often of the most highly-finished character, and got up with a power of effect to which we are almost strangers in England, are the rule here. Gilt frames are not demanded, and the most important drawings are merely mounted on strainers laid with toned paper on the margins, as competition drawings are usually mounted in England. The principal architectural drawings occupy two large rooms, each much larger than the one Royal Academy room, and extend along the end and well up the two side walls of the gallery surrounding the great central court of the Palais d'Industrie. Another feature in the collection, which we do not approve of so much, is that nearly all the drawings which are not illustrative of ancient monuments are ideal designs, which have not been and probably never will be executed. Many of these are of much interest and evince remarkable talent and acquirements; and no doubt it is a seductive thing to evolve on paper architectural ideas that need not be limited by considerations of cost and expediency. But after all, one object of an annual exhibition of architectural designs should be to illustrate the state of the current architectural work of the year; and in this department the Salon collection is even more deficient than usual; in fact, the drawings illustrating buildings executed or commissioned might we believe in literal truth be counted on the fingers.

In the centre of one room is M. Jean Bréasson's model, one-tenth actual size, for a monument "to the Glory of the Republic." This is a composition with a large circular base in four stages, of which the two middle ones are fountain basins, the water flowing from masks in the band of floral ornament which surrounds the upper stage. On the latter rises a great quadrangular stele terminated with a cantilever cornice, which is surmounted by a draped figure of "La République," holding a statuette of Victory (?) in her upraised right hand. The lower portions of the four faces of the stele are decorated, on one face with bas-relief figures of Liberty, Equality, and Fraternity, on the reverse of this with a profile figure of a lion, and on the other two sides with bas-relief trophies of arms &c. Opposite the four angles of the stele, on the oblique angles of the plan, four pedestals project into the upper fountain basin, bearing groups of sculpture. "Égalité devant la loi" is represented by a seated female figure pointing out to a European and a negro boy the tables of impartial law; "Instruction pour tous" by another seated woman teaching two children ("instruction for two" we heard it translated); "Liberté de Conscience" is a seated female with a torch and a book; and "Suffrage Universel" is a seated figure of a working man with a hammer dropping his vote into the ballot-box. The design compares well architecturally; the basement groups would be better with a perfectly plain plinth behind them, leaving the elaboration of mouldings to commence above; the architecture and sculpture here seem rather to interfere with each other, but there is a great deal that is striking in the design, and it has the merit of having a meaning in every part.

Large restoration drawings of course occupy some space on the walls, but rather less than is usually the case at the Salon. Nearly the whole wall of one room, however, is occupied by the huge strainers containing M. Redon's drawings of the ruins of Baalbek and a restoration. Four frames are devoted to the "actual state," which is shown in splendidly-executed colour elevations such as we see nowhere but in France, no incitement being given to English architects to produce work of this kind. The colour and texture of the walls are shown to perfection, both in the actual and the restored drawings, which are masterpieces in the art of coloured elevation. The restored elevation would convey a more true effect however, if the two pediments of the temples, which are far back from the front plane of the elevation, were kept more flat and distant by a more subdued tinting. An actual and a restored plan are also added. The author treats the hexagon court in the rear of the entrance façade as a colonnaded court with tiers of niches and statues in the walls at the back of the colonnade, and places a colossal bronze statue in the centre of the court, for which however his plan of "état actuel" does not pretend to show any authority. But as a whole, the set of drawings is a great credit to French illustrative architecture. We are bound to add that this splendid workmanship does not seem to attract any general notice among visitors, and that the architectural rooms at the Salon are almost as empty as that at Burlington House, though there is much more to look at.

M. Fournereau's drawings of the temple at Angkor-Thôm in Cambodia are the only set of restoration drawings equalling the last-named in scale and importance. These splendid drawings are part of the result of the architectural "mission" to Cambodia organised by the Ministry of Fine Arts, and the magnificent drawing of the restored elevation, a drawing covering the space of a small room and full of the most elaborate detail, is an effective example of what may be done in the way of archæological illustration of architecture under a Government that will spend public funds in encouraging such studies. No doubt the architecture itself is *bizarre* in the extreme, from a European point of view; but it represents the ideas of people who were once a great and powerful race, as their architectural remains amply show, and who had moreover, after their own manner, that kind of enthusiasm which pushed them to do the greatest and most elaborate things in art that they were capable of. We referred last year, in speaking of the contents of the Trocadéro Gallery, to the extraordinary boldness of scale and style of some of the casts from Cambodian sculpture exhibited there; and this restored drawing of the temple gives the same kind of impression of extraordinary though barbaric power; especially in the effect of the immense mass of wall, with its portentous mouldings, which forms the base to the whole fantastic composition. M. Fournereau's drawings include plans and sections as existing and as restored, and also (which is unusual in French sets of drawings of this kind) an effective coloured perspective of the existing remains, with their extraordinary and multitudinous carved detail.

Another of the largest drawings exhibited is M. Boileau's design for a monument of 1789, shown as occupying a space to the west of the Place de Carrousel and facing the Tuileries gardens. This is an immense coloured elevation showing a built-up piece of monumental architecture, consisting of a gallery with a triumphal arch and dome in the centre of the long side parallel to the Rue des Tuileries, and a return wing at each end

connecting it with the road, where there is at each side an arched entrance with a cupola over, kept however very much below the line of the central dome, which stands high above the rest of the composition. It does not appear what use is to be made of the interior of the gallery, which is not a colonnade but confined within solid walls and covered with a glass roof; the exterior is divided into three bays at each side by wide pilaster-like piers with vertical panels containing inscriptions in gold on a dark marble ground; the lower half of the spaces between is occupied by an engaged order with wide spaces between the flanking columns filled with sculpture representing scenes in the history of the revolution,—the taking of the Bastille, the voluntary enrolment, banquet of the Girondins &c. The piers terminate in coloured marble obelisks with big gilt stars as finials. Above the bas reliefs are panels with portrait heads in wreathed medallions. The treatment of the curtain walls is much the best part of the design; the centre dome, on an open circular colonnade of Corinthian columns, looks insecure and gimcrack, and the treatment of the end cupolas is commonplace and showy.

Let us turn to some of the smaller drawings. M. Laffillée exhibits seven frames of most interesting coloured studies of "peinture murale au môyen age en France," dated approximately and with their place given. Any English architectural student visiting the Salon should look at these, which we hope the author intends to produce in a chromolithograph volume. M. Cordonnier exhibits an elevation of his design for the new façade for Milan; an elaborate Late Gothic façade of which however the details strike one as rather thin and cast-iron in appearance, and in which the author has adopted the principle of flanking the façade with two immense towers far over-topping the central lantern, a treatment which we long ago condemned as a mistake, in speaking of the selected competition designs for Milan.

M. Lambert's "Croquis et relevés des Monuments Français" consist of a large frame of beautifully-executed small pen drawings, chiefly from various châteaux in France, in which artistic touch and effect in pen drawing are combined with accuracy in the indication of detail.

M. Moyneau's series of drawings for the restoration of the château of Nemours, a very prettily-got-up set of water-colour elevations, have for their main object the renewal of the courtyard walls and towers, which are ruined, and the replacing of a timber gallery of communication, of which only the traces now exist, between the angle towers of the principal mass of the building, round the outside of the walls. This restoration of Middle Age castles to their original state is a kind of mania apparently in France at present; it is very pretty work on paper; whether it is worth while carrying into execution all this pretence at the renewal of feudal architecture is another question. This we presume is a private commission, as it bears no official indication of any kind. The imprimatur of the "Monuments Historiques" appears on M. Petitgrand's charming set of drawings of the Romanesque Church of St. Paul at Issoire, one of those buildings in which the development of the buttress is so curiously illustrated by the employment of engaged columns and buttresses in two apses of the same chevet. We presume some part of this drawing is restoration, or at least that the building has been finished-up into an appearance or completeness greater than it actually has, in order to give a complete record of its design. The drawings consist entirely of tinted elevations. M. Deverin's fine set of drawings of the Abbey Church of St. Jouin-des-Marnes include drawings, in the same style, both of the actual state and of the proposed restoration. The north side elevation showing the actual state presents a most strange jumble of an apsidal chevet without its proper cornice terminations, with red tile roofs hanging over the curves like a blanket; a Romanesque tower with half-effaced details; square "churchwarden" windows built into the wall of the nave, and the remains of a Late Gothic traceried cloister below them. The west front, which requires but little in the way of restoration, is a singular piece of architecture, with flanking turrets formed by a combination of three great shafts on each face, having with their capitals more the look of very elongated Classic columns than of anything Gothic; this columnar collection being crowned with two arcaded stages and a conical turret. The restoration of the eastern end which is contemplated, or at any rate shown, is very complete, but we fear is likely to confuse history very much. A number of interesting drawings of capitals and other details are added. M. Esquié's project for the restoration of the extraordinary castellated-looking brick church of Venesque (Haute-Garonne) hangs next to this: the drawings do not show very clearly what is intended, but it seems to include a rebuilding of the west front in a characteristic brick style, and with a grey stone or granite basement on which the brick is built direct without the intervention of any moulding, as we noted the other day it was done in Mr. Norman Shaw's new building on the Embankment; so he is after all not alone in this piece of architectural immorality. Behind the front is seen the top of the low broad battlemented tower, with bells of unequal sizes hanging in open arches. Altogether this is one of the most curious and interesting bits of work among the drawings connected with restoration work.

M. Marcel's restoration of the Château of Touquedec is illustrated by some fine water-colour drawings of the existing remains and a set of equally fine tinted elevations of the restoration, together with a bird's-eye view perspective in monochrome. This, which includes no less than twelve large frames, is one of the finest sets of drawings in the collection. The studies for a restoration of the Château of Mesnières, by M. Conin, include a fine water-colour perspective of the building occupying three sides of a courtyard, with a Francis I. façade towards the court, and two immense circular machicolated towers, with conical roofs, at the outer angles of the building. M. Lafargue's restoration of the Château of Lestang is another admirable set of drawings of the same class. Next to this are M. Ridel's drawings and restorations of the stern domed Romanesque structure of the Abbey of Foutevrault. The architect has restored the central tower with a short bulbous-shaped spire or pointed dome in masonry, which has rather too modern an appearance, though it is certainly an improvement on the existing ugly timber and slated termination. The most remarkable incident in the plan is the "cuisine," a separate eight-sided building with a lofty conical roof in masonry, and an apse on each side of the octagon, giving it the appearance of a chevet continued all round the centre. This extraordinary structure stands apart opposite the west end of the refectory, which runs parallel with the church on the south side of the cloister. The church itself has a one-aisled nave, with ponderous piers dividing it into four bays, from which spring transverse round arches with flat soffits, carrying the domes which internally form the roof to each bay. These domes are a restoration, but no doubt a correct one as to the general scheme of the architectural design. As it now stands the nave is covered by a continuous timber roof. A full plan of the church and the contiguous buildings is given. This is a remarkable set of drawings, got up with great completeness. A set of water-colour perspective sketches of existing portions is added. The cloister is partly Renaissance work, with circular arches divided by coupled columns of a small Ionic order.

M. Libaudière shows a beautiful coloured elevation of the Romanesque Church of Le Caillère; and M. Lemoine exhibits drawings of the existing Château de Veuil and restoration, with its circular towers curiously divided up into panels by a series of what may be called wall-mullions. M. Albert Gayet exhibits a fine set of of coloured drawings of a restoration of the pavilion of Rameses II. at Medinet-Abou: the colouring is rather harsh and crude, but so probably was the original. Among the drawings illustrating ancient work there is perhaps none finer, as a specimen of illustrative architectural drawing, than M. Breffendille's coloured elevation of the portal of the Church of Sainte-Pierre at Avignon. The sculptured details are worked up with remarkable force and reality of effect, producing almost the appearance of actual relief.

As observed, designs for modern buildings form the minority of the collection; there seem to be rather more of these than usual, at first sight, but on examination it turns out that a large proportion of these, including the largest and most striking drawings, are only "projets"; castles in the air, and the number of illustrations actually executed or commissioned is very small indeed; a practical deficiency in French architectural exhibitions which we have often commented on. M. Laborey shows a good interior view of the "Chapelle de Nôtre-Dame-de-Sion," at Paris, a Renaissance building with the domed ceiling decorated in a pretty but rather timid manner with powderings and medallions on a gold ground. M. Jasson's drawings of the Victor-Poirel Salle-de-Concerts at Nancy show a well-detailed design of the modern French Renaissance type. Among the "projets" a very pretty one, shown only by a single lightly-tinted elevation, is M. Monjauze's "Façade d'une Eglise Paroissiale," a Renaissance façade with an octagonal dome seen in the rear and a bell-turret at each side of the façade. M. Destors' "Un Cercle Artistique" is a student's competition design of great pretension and shown in a set of very large and well-executed geometrical drawings, but spoiled by utter lack of repose and refinement in the details. M. Le Ray's "Un Hôtel de Journal, avec imprimerie" is a fine and grandiose design, fully illustrated with plans, elevations, and sections, the hotel forming a separate block to the street, the printing rooms a great iron-roofed building in the rear; the façade has the fault of being too showy and occasionally a little vulgar in the details, but its general effect is dignified and suitable; the best part of the design is the treatment of the back of the building towards the courtyard which intervenes between the front block and the printing house. The plan is well laid out, and all the practical details of the building completely shown. "A theatre for a provincial town," by M. Dupuis, is another Students' Competition design; there is nothing of the provincial town about it, for it is nearly as costly and decorative as the Paris Opera House; there is a very rich effect in the treatment of the centre part of the principal façade with its Corinthian order and open arcade between the coupled columns, the lower parts of which are enriched or rather encrusted with ornament in the shape of masques and scrolls; the large detail elevation is a capital piece of work of its kind. In strong contrast to these showy designs is M. Moreau's "Etude d'Hôpital," a plan for an immense pavilion hospital treated with uncompromising simplicity in the architecture. Then we have a "Hôtel pour un architecte décorateur" by M. Gaston Cousin, the slightly tinted elevation of which is a really refined bit of work; there is no order, and the designer has known how to hold his hand and be reticent with his ornament, which is well-placed and well designed; there is a plain masonry wall with a rusticated basement, and windows with decorative "encadrements" equally spaced in the wall, the main wall space being terminated by a cornice with a broad band of carved ornament beneath it as a frieze. M. Le Grand's design for a Mairie for the Xth Arrondissement shows on the plan a clever treatment of an irregular and awkwardly shaped site, but the design is commonplace.

M. Emmanuel Garnier's "Hôtel de M.

G.—— at Nismes," we may take to be one of the very few real modern buildings of which any drawings are exhibited. It is shown in a very large and elaborate set of drawings, but does not please us much. It is a Classic building without an order, and to which a certain special effect is given by the treatment of all the window architraves with continuous carved ornament all round, on a basis of perfectly plain masonry; the effect is meant to be rich but is somewhat monotonous, and considering the great size of the elevations the detail really ought to have been better shown; it is not worth while making drawings on so large a scale except with the object of showing detail thoroughly. M. Mougenot's drawings showing a design for baths for Epinal are also only a "projet," but are very interesting. This is one of a class of buildings in which French architects excel; buildings for a practical purpose in which a simple and economical architectural treatment only is admissible. We have here a long red-roofed stone building flanking the sea, with a rusticated basement-story immediately above the pier, with small windows only; and above this two stories with the windows connected vertically and enlivened with a little inlaid tile ornament between. The entrance is on the end elevation at right angles to the sea, with a low wing pavilion at each end of it with heavily rusticated angles, and three large arched entrance-doors in the centre of the connecting wall. The treatment is perfectly unaffected and simple, the building looks like what it is, and the firm and distinct manner in which the elevations are drawn and tinted deserves special praise.

M. Delort de Gléon's "Hôtel Particulier" at Cairo is a strong contrast to the last-named exhibit, being a Cairene treatment by a European architect; a mass of white and yellowish plaster wall with a characteristic cresting, and coloured tile ornament liberally inserted in connexion with the fenestration; the delicately-tinted elevation has a charming effect. Next to this is an admirable coloured elevation of a very different type, M. Baril's competition design for the Mairie of the Xth Arrondissement: a very pleasing design with a slightly-projected centre block with pyramidal roof, a Corinthian order in the upper story with mullioned windows between, and plain wall below with three arched entrances; the slightly-receding wings are kept very plain, throwing out the centre portion; the design is delicately and very artistically tinted, an excellent example of geometrical architectural drawing. The plan is treated with a centre court and a colonnaded loggia round, with a handsome external staircase from the courtyard level to the loggia.

M. Cabanié's coloured drawing of the church of Clermont-Ferrand, a kind of elevation with the effect of a perspective (the ground-line is actually drawn in perspective though the cornice lines of the apse are straight) deserves mention as a very effective drawing, tinted in a light reddish tone which, with the blue sky above, gives a powerful effect of sunlight. It is difficult to determine whether M. Gontier's Château de Villefargeau represents a new house, or is a drawing of an old one: it is a very quiet unassuming house, with a long stretch of low red-roofed buildings, partly offices, behind; if it is a new building, it is a rather agreeable variety among modern French house designs for its exceedingly simple, unpretending, and homelike character.

Of decorative design there is not very much: and what there is will not appeal much to English taste, which in the present day may at least boast of evincing a far more delicate perception and taste as to colour and decorative style than is exhibited in French work of this class. M. Marmex exhibits two designs for tombs, apparently in red granite, and which realise nothing better than the old sarcophagus pattern with sham rings at the sides, and mounted on a lofty and solid mass of plinth. M. Lorain exhibits a drawing of his façade for the portal of the gallery of "Classe 24" at the 1889 Exhibition, a gewgaw arrangement in blue columns and gilding, which might do as a temporary exhibition design, but was certainly not worth exhibiting here for more mature and considerate criticism. M. Onillon exhibits some sketches for decorative tapestry, with the Renaissance *motifs* on a yellow ground which seem to be the prevailing modern idea for tapestry design in France; in the middle of one of them is a nude figure in an architectural alcove, and relieved upon a ground of bright red. The colour effect is what the French themselves, in moments of more sober consideration, would perhaps call *criarde*, and it is needless to remark that of all things in the world classical architectural detail is the kind of thing least suited for treatment in tapestry; it demands clean lines and clear-cut outline, which is exactly what tapestry cannot furnish. M. Guillaumot, a provincial architect at Marly-le-Roi, and pupil of Viollet-le-Duc, sends three coloured interiors illustrative of rooms and furniture in the Château of Marly, which are well executed and interesting as illustrations.

The drawings by M. Robert-de-Massy, representing coloured design for the walls of three rooms, a "cabinet de toilette," a "cabinet de travail," and a "salle de bains," are the same class of design which is exhibited on the Royal Academy walls by Professor Aitchison: they are more precise in execution and more brilliant in colour—much more brilliant; but what colour! The "salle de travail" shows a green self-coloured wall with red doors and a white mantelpiece with strongly coloured blue tiles; in the "salle de bains" the whole wall is enclosed in a bright red frame, within which are tiles, and within this a similar bright red frame enclosing paintings of marine creatures. The "cabinet de toilette" has a very pronounced wall tile pattern as a dado, above which is painted an imitation trellis with flowers trained over it! There are some things, at all events, that we do better in England. M. Hourlier exhibits a design for a ceiling intended to illustrate the twelve months of the Republican calendar, which is enough to knock one down; the general design forms a great red cross from angle to angle of the ceiling, with panels between the arms in which are allegorical figures with representative reptiles and flying things scattered about them in profusion; the thing is not only not decorative in effect or treatment, but it would be enough to lower any room to which it was applied to about half its real height; the large figures in the angles, at the extremities of the cross, are however well designed in a large and grandiose manner. Beneath this is a clever piece of archæological decorative study by M. Mayeux, the colour statue of Artemis of Ephesus, the nude portion of the figure (down to the waist) painted a strong red, with a pair of wings seen behind somewhat on the model of the decorative wing familiar in Egyptian work. This semi-barbaric figure stands relieved against an alcove of strong and dark blue, and bases her feet on a marble pedestal somewhat resembling an egg with the small end upwards. The figure and niche are framed in a polychrome architecture looking rather of the proportions of wood than stone. The whole effect is distinctly Asiatic rather than Greek, and may so far be in keeping with the probabilities of Ephesian decoration, it is at all events a powerfully-executed drawing to which some thought has gone. M. Massy exhibits a small and very delicate water-colour elevation for the Uruguay Pavilion of the 1889 exhibition, this is a very pretty little building; a portion of the "decoration of classe XV." shown in the same frame, is, like nearly all the coloured decoration design, somewhat hard in effect and inharmonious in colour, though it does not do such violence to the eye as some we have mentioned. The best piece of decoration by far that is to be found in the collection is the study by M. Espouy for a scheme for the decoration of the ceiling of a room in the Villa Medici. This is in a not very pure style it is true, the details consisting of scrolls and festoons and figures dancing about among them after the Renaissance fashion, but it is really refined in design and execution, and pleasing and delicate in colour, and the little figures are very well drawn. A design in another school of Renaissance is that by M. Paquot, for a decorative ceiling in Louis XVI. style; a large circular moulding gives an opening in the centre into the sky and clouds and pink cupids flying about, the spandrils are loaded with bundles of multifarious objects on a gold ground: a clever drawing reproducing a most vicious style of decoration. A design for a decorative ceiling by M. Pedroni, consisting of very heavy mouldings dividing the ceiling into panels of various shapes, with Renaissance scroll-work on a gold ground in the panels, is inoffensive in taste though not in any way remarkable. If we have a good deal to learn from the French about architectural drawing properly so called, and a good deal to envy them for, we have at all events no cause to be jealous of them in regard to decorative design, in which, if we may accept the Salon as a test, their best things are only tolerable and their worst rather intolerable.

NOTES.

THE advocates of the registration of architects in this country (or those who pose as such) have, we believe, been referring in support of their views to the demonstration which has been got up on the subject in France and America. The French architectural papers have lately been full of excitable and piquant letters from individual architects discussing the subject from various points, most of which however, showed so little pretence of seriousness, and were so obviously prompted mainly by the desire, so common among Frenchmen, to evolve smart and humorous epigrams, that they hardly called for serious consideration. But the decision come to by the official Commission appointed to consider the question of an architectural diploma in France, is significant enough. It should be borne in mind that France is the country in which architectural education is more systematically and elaborately carried out than in any other country in the world; that there is probably no country where architecture and architects are held in more respect; and that the Commission consisted almost entirely of men specially qualified to consider the subject in its bearing on the highest interests of architecture as an intellectual art. The decision of this Commission is that the theory of a compulsory or obligatory examination is rejected by a majority of 15 to 3, and that of a "diplome facultatif," or a diploma given as a distinction to those who claim and can show that they are worthy of it, was rejected by a majority of 12 against 6. This, as is remarked in the *Semaine des Constructeurs*, from which we take the facts, "amounts to the rejection *en bloc* of all diploma." In regard to the subject of provincial instruction in architecture a resolution was passed that "The Commission is of opinion that the provincial architectural societies should be invited to study in concert with the state or official authorities ('pouvoirs publics') the means of developing or creating schools of architecture."

THE speeches at the Royal Academy dinner of last Saturday werequite up to the usual mark of an occasion when some of the best of the after-dinner speeches of the year are usually made. The Marquis of Salisbury's sketch of the manner in which artists would in future times be taken care of under a "grandmotherly" Government of advanced progress was very happily hit off. "But the time may come when there will be a committee that will examine you and a commission that will reconstruct you. And, worse than that, you will receive the assistance of the Treasury, and you will be exposed in Committee of Supply to the microscope of Parliamentary taste. You yourself, Sir, or at least your successor, will be appointed by

competitive examination, and you will be forbidden by Act of Parliament to work for more than eight hours a day. Then an inspector will come down to you here as everywhere else, and I fancy that it will be an inspector from the County Council. His duty will be to examine beforehand the subjects to which your artists are to devote themselves, and to see that the models whom you employ are properly draped." This prophecy must have been a satisfactory one to Mr. Horsley, at all events. The chief interest of the evening lay in the appearance of Mr. John Morley as the respondent to the toast of literature, who took the opportunity of pointing out the sense in which literature also was an art—"the happiest of all callings, and the most imperishable of all arts," and who made a plea for the protection of the English tongue against such barbarous inventions of words as have already been coined, and are still further threatened, in connexion with the practical application of electricity.

THE London County Council is still on its trial, but it has had its case very succinctly put before the public by Lord Rosebery in his review of the first year's work of the various Committees of the Council. These committees are upwards of twenty in number, and it is therefore not surprising that Lord Rosebery's review, divided into three instalments, occupied nearly an hour in delivery at each of the three last meetings of the Council. There is no doubt that the Local Government Act of 1888, which authorised the election of County Councils all over the country, does not meet all the requirements of London government, and it was confessedly only made applicable to London by reason of the state of things which was revealed by the Royal Commission of Inquiry into the proceedings of the Metropolitan Board of Works. Modified as some of the general provisions of that Act were to meet the special needs of London, and containing as the Act does special clauses applicable to London alone, the working of the measure in London has entailed a great deal of friction and delay in many mere matters of detail. Amendments of the law (some of which are now before Parliament) will no doubt make the administrative machine work more smoothly. In the meantime, the Council will do well to profit by Lord Rosebery's excellent advice, and to bear in mind that they are an administrative and not a legislative body. By the intelligent and diligent discharge of the important work committed to them they will gradually gain the public confidence, and may ultimately have the satisfaction of developing into an ideal municipal body.

WE have good authority for saying that Professor Raschdorff's new design (dated March 9) for the new Cathedral at Berlin has been approved of by the Emperor.

SIR WILLIAM HARCOURT attacked the Chancellor of the Exchequer in the debate on the Budget provision on Monday for not abolishing the Inhabited House Duty. This produced from Mr. Goschen the confession that the entire abolition of this tax had been in his mind, but that he did not like to abolish a tax entirely, on account of the difficulty of introducing it again. But this reasoning seems to be one against abolishing any tax or any part of a tax; because, if necessity requires it, it can be no valid argument against the re-imposition of a tax that at a time when it was not needed it was abolished. The Inhabited House Duty is no doubt a tax easily and inexpensively levied, which is a reason for its continuance, but in the case of many persons it is a tax on a necessity of life. It certainly ought, if possible, not to fall on houses below 125*l.* in annual value—a house above that value falls into the category of luxuries. The fairest way to levy it would be to exempt houses under that value, and to exempt also that amount in the case of houses above that value. Thus a house valued at 200*l.* a year would pay on 75*l.* The present amount is too low.

THE case of "Proudfoot *v.* Hart," which was decided the end of last week by the Court of Appeal, is one of considerable interest and importance, but whether it really throws light on the relations of landlord and tenant seems rather doubtful. The action was brought by a landlord against the tenant for not delivering up his house at the end of the term in "good tenantable repair." The reports of the case which have been published are rather too meagre to be satisfactory, and it may be that when this decision is reported in full in the Law Reports, it will be of greater value than it appears to be at present. In the course of the judgment the Court gave the following definition of "good tenantable repair":—"'Good tenantable repair' is such repair as, taking into account the age, the character, and the locality of the house, would make it reasonably fit for the occupation of a reasonable-minded tenant of the class who would be likely to want the house." It is obvious that this definition requires each case to be judged by its particular facts, and also leaves a good deal to the inclination and personal views of the man who has to decide between landlord and tenant. In the case in question the official referee gave the landlord the costs of painting and papering with new paper (similar to the old paper), some of the rooms; but the Divisional Court and the Court of Appeal reversed this decision, and held that such work was decorative repair, and was not required to be done by the words of the contract. But we might ask whether a house is in tenantable repair if it is not papered? And the exclusion of decorative repair in the case in question does not seem to follow from the definition which was laid down by the Court.

ACCORDING to the *Illustrierte Zeitung* of the 3rd inst., the sculptor Reinhold Begas (who is at present favourite of the Emperor), has completed a new model for the much spoken of "National Monument to William I.," which is to have a site found for it in Berlin, and this model is supposed to have been designed in accordance with the ideas of his patron. The same journal brings the news that a new, a second, competition for this monument is being arranged, to which, however, besides Begas, only sculptors, *i.e.*, the four winners of the second prizes at the grand competition of October last, Messrs. Hilger, Otto, Schaper, and Schilling, will be invited. By whom these latter arrangements are being made the journal does not notify; but it distinctly mentions that in this competition, that site against which the assessors of last year's competition distinctly voted, but which seems to have taken the fancy of the young Emperor, *i.e.*, the "Schlosspeiheit," is to be chosen. If this plan really be followed, it will cause great complaint in German artistic circles, and especially among architects, as it will be remembered that the two first prizes in the grand competition were awarded to members of the profession, in whose designs architecture and not sculpture was the prominent feature.

THE great suspension bridge at Buda Pest, which was erected 1842–1849 by Messrs. William & Adam Clark,—famous not only for its construction, but also for its extremely fine outline from the artist's point of view,—is in danger of breaking down, this danger being caused by the rusting and giving way of the worms of the screws on which the main strain tells. The Dutch engineer, Haentjens, who has been consulted as to the quickest and surest way of saving the bridge, is preparing plans for this purpose with the utmost speed.

IT may be worth note that the managers of the Exhibition of Gardening and Horticulture,* opened at Berlin on the 25th ult., took special care that the floral arrangements should be brought into connection with architecture, and that the visitors should have not only plants and flowers to study at their show, but also the different modes of arranging these on, or in combination with, buildings and parts of buildings, both exteriors and interiors.

* Allgemeine Gartenbau-Ausstellung, 1890.

A VERITABLE Elizabethan house, known as the Shelleys, in St. Anne's, Lewes, will shortly be offered for sale at the Mart, by order of the executors of the late F. W. Cosens, F.S.A. Built of stone, and surrounded by a garden, it retains many of its earlier fittings and decorations. The house derives its name from the removal thither, *circa* 1630, of the Shelley family, descended from the Henry Shelley, of Patcham, Sussex, who towards the close of the sixteenth century migrated from Patcham to the house in Southover, Lewes, which is illustrated in Horsfield's "History and Antiquities of Lewes" (1827). That work states that the male heritable line of the Shelleys of Lewes, one of the three families of this name in Sussex, failed with the death, in 1811, of Henry Shelley, M.P. for the borough. Mr. Cosens's collection of pictures, &c., will be put up for sale at Christie's on Saturday next, May 17, and the following Monday and Tuesday. It includes many cabinet works of the modern Spanish and French Schools; a set of topographical drawings to illustrate the works of Johnson, Goldsmith, Dickens, and other authors, by E. Hull: together with T. Faed's "From Dawn to Sunset" and "Lady of Shalott," Sir F. Leighton's "Dante in Exile," L. Alma Tadema's "Confidences," Clarkson Stanfield's "Dort" and "Naples," D. Roberts's "Edinburgh" and "Interior of St. Peter's," Holman Hunt's Rienzi," Sir J. E. Millais's "Trust Me," E. W. Cooke's "Millwall," W. P. Frith's "Railway Station" and "Coming of Age in the Olden Time," J. C. Hook's "Valley on the Moor," and John Phillip's "Fair at Seville" and "La Alameda."

IT is stated in the *Standard* that Mr. James Jardine, lately High Sheriff of Cheshire, has contributed 2,500*l.* towards the restoration of the south porch, Manchester Cathedral. The north porch was recently rebuilt, at a cost of 5,600*l.*, by the munificence of Mrs. Worthington and Messrs. Jonas and Thomas Craven. The present cathedral was originally the parish church of St. Mary-the-Virgin, St. Denis, and St. George, famous for the beauty of the stall-work. In 1422 a royal charter was addressed to Thomas, fifth Baron de la Warr, for making the church collegiate. The college having been valued, in the suppression, at 226*l.* 12*s.* 5*d.* yearly, was dissolved in 1547, and in 1578 was refounded as the College of Christ. Dr. Dee was warden during the period 1597-1607. Reinstated at the restoration of King Charles II., the collegiate foundation survived until 1847, when, in terms of the Act 10 & 11 Vict., c. 108, a see was set up, and Dr. James Prince Lee was elected first bishop. The collegiate buildings were latterly occupied by the Blue-coat School. Having been repaired and refitted in 1815, the fabric was restored, and the western tower rebuilt, in 1862-8, by Mr. J. P. Holden, Chapter Architect. Of the two organs, one is by "Father" Smith, the other has an oaken case designed by the late Sir G. G. Scott. Dr. Dee died at Mortlake in December, 1608. His magical black stone (said to be a bit of cannel coal) was sold at Christie's on July 14, 1888, in Lord Londesborough's collection. It had belonged to Lord Peterborough, Lady Betty Germaine, and to Walpole, and is "the Devil's looking-glass, a stone" mentioned in "Hudibras" as used by Kelly, who had been Dee's associate.

CAERPHILLY is known as the site of a great Mediæval castle, but it gains another kind of notoriety in Mr. Spear's Report to the Local Government Board upon the prevalence of diphtheria and croup in the Registration Sub-district of Pontypridd, and upon the sanitary condition and administration of the sanitary areas therein contained. One of the first places mentioned in the report, however, is Cilfynydd, a *new* mining village, with a

population that has grown within the last four years from a couple of hundred, at most, to over 2,000. Here the houses are built in rows and terraces half way up a steep hillside. "There is no regular sewer system. Most of the 370 houses (or thereabouts), have slop-water drains which ultimately discharge into a highway drain and thence into the canal; or, where this method is not available, the sewage runs over adjacent unoccupied land, or into the streets or back lanes; occasionally into the privy cesspools. The back lanes have the appearance of quagmires, and the yard space about dwellings is often sewage sodden. Cess-pit privies, and cesspools receiving the discharge of closets, are in general use. When full, they overflow into the back lanes; and, in times of storm, water from the hill side causes them to overflow, and the contents have been known at such times to be washed into the very houses." In the village of Caerphilly "the sewer is inadequately ventilated by a few small pipe ventilators, and by a few untrapped roadside gullies. The private drains, even in the case of new houses (and in their case in contravention of by-laws) are unprovided with special means of ventilation; and, occasionally, rough untrapped gullies are situated close by the doors and windows of houses. A considerable amount of sewage still finds its way into the rivulet crossing the centre of the village and causes there a nuisance. Some of the houses of the village have no privy accommodation of any sort, others have the old-fashioned privy-pit, which is often neglected and the source of much nuisance; others again, and these perhaps the majority, have closets connected with the public sewer, but, as no flushing apparatus is provided, their condition is often very unsatisfactory." "In none of the divisions," we are told, "is there a properly organised method of administering sanitary affairs, or of ensuring that the many and varied conditions injurious to health are brought in detail to the knowledge of the Sanitary Authority. The Medical Officers of Health never attend the meetings of the Sanitary Authority, and their representation are confined to their annual reports. . . ." "What is wanted in this rural district is one Medical Officer of Health, whose salary should repay the expenditure of time and labour in sanitary organisation and supervision, and who should have under his direction an efficient staff of Inspectors of Nuisances. At present the single Inspector of Nuisances is engaged also as surveyor, engineer, superintendent of the scavenging contractors, and collector of water-rates in districts where the Sanitary Authority have the water supply under their own control."

IN spite of the split in the artistic camp in Paris, the exhibition of pictures at the Salon does not seem very materially affected in regard to the general level of work displayed. We are conscious, of course, of missing some eminent and well-known names, and how much has been really lost to the Salon will appear when the new Salon opens on the fifteenth. But the general appearance of the galleries of the old Salon, considering their great extent and the numberof works hung, is a remarkable testimony to the extraordinary vitality of French painting at the present day. We shall give a more detailed account of the exhibition when the new Salon is also opened and the two can be compared.

WHILE referring to the subject of French exhibitions, let us once more enter a protest against the insane and exasperating system of cataloguing art exhibitions to which the French adhere. As every English visitor knows to his cost, more especially every one who has attempted to make notes or write an account of the exhibition, the catalogue of the Salon is arranged with the names of the painters in alphabetical order, and the numbers in numerical order, but the numbers on the wall follow no order at all: the picture you are looking at may be No. 217, and the next 1,123 and so on. To any one making a regular progress through the rooms this necessitates a continual and most irritating exercise of constantly turning the leaves of the catalogue backwards and forwards. But this is the smallest annoyance; the serious one is that it is impossible to know where to find any picture you wish to see. You may read in the catalogue the name of a painter and the subject of a work which you know is likely to be one of the best things in the collection, but there is not the slightest guide as to where you may be able to find it over a space of literally several acres of galleries. If it is a small picture, the search for it may cost the best part of an hour, and be unsuccessful after all: it is a mere chance whether you find it or not. At the Royal Academy the arrangement of the catalogue, with the galleries numbered and the picture numbers running consecutively, tells us exactly where to find any picture we wish to see, with the least possible loss of time. Why *will* the French keep up this absurd and illogical system? If they think that they have not much to learn in art from us, they may at least take a hint from us in the humble but not unimportant practical matter of the convenient arrangement of catalogues.

THE ROYAL ACADEMY EXHIBITION.

THE remark which is heard regularly every year from loungers at the private view, that "it is not a good Academy this year," happens on this occasion to be more true than it sometimes is. The proportion of pictures that are of interest, as against those that are of none, is perhaps pretty much the same every year; but there are years when the best men are not at their best, and when there is no one picture that makes a marked impression; and this is the case with the Academy of 1890.

As far as mere charm of form and colour are concerned, the President has perhaps never done better than in the "Bath of Psyche" (243), which shows a beautifully-painted nude figure standing sideways to the spectator, and with the delicate tints of her body relieved against white drapery hanging on the further side of the figure, which is partially reflected in the water of the bath; the back of the scene is formed by marble Ionic columns with gilded volutes, and a reddish purple curtain hung between them, over which the blue sky is seen. The face of the figure, too, is lovely in its way, though it may be rather *spirituel* than spiritual; and though it must be admitted that the intellectual interest of the work is of the slightest, it at all events succeeds at every point in realising its aim, viz., sensuous charm of a delicate and refined order. The picture has been purchased for the nation from the Chantrey bequest fund, and it is no doubt worth purchasing, but did Chantrey intend that the Royal Academy should act as trustees of a fund for purchasing their own pictures? The "Tragic Poetess" (310), by the same artist, is a picture with more meaning in it: the figure, in dark robes, is seated facing the spectator, and the face is a very fine one, full of intellectual expression; the drawback to the picture is the theatrical effect of the brassy sky behind, which is like nothing in Nature. Mr. Tadema's contribution, in its usual place in Gallery III., is as good as usual, without more human interest than usual. It is entitled "The Frigidarium" (324); in the foreground is a kind of vestibule to which a lady comes from the bath which is seen beyond, some drapery loosely held round her, while an attendant pulls back a curtain for her admission, showing the open-air bath beyond and the bathers, and bits of architectural detail in the distance, and over the bath enclosure a bright bit of hill, and the open sky: the picture is a variation upon an old theme, but each variation has a charm of its own, though the continued repetition of the same rather expressionless type of face is an element of monotony. Of the same class of work is Mr. Poynter's charming "On the Temple Steps" (866), where a girl is seated on a balustrade beside a profusion of fruit; in this, however, while Mr. Poynter's treatment of architectural and other accessories cannot be said to equal Mr. Tadema's, the interest of the figure is much greater; she is no cold abstraction of a typical Roman life, but a blooming girl full of warmth and life and expression, and is the centre of attraction of the picture, instead of being a mere figure to hang draperies on; and though Mr. Tadema has never been equalled in his technical treatment of marble and Classical architectural detail, and in the clear effect of sunlight which floods his scenes, one cannot but feel that the production of a beautiful and attractive figure counts for more than the best marble-painting.

One of the most important pictures of the year is unquestionably Sir John Millais's landscape (25), bearing for title Byron's hackneyed line,—

"The moon is up and yet it is not night."

Painters really might go a little further out of the beaten track than they do for quotations; one would suppose, to look at the Academy catalogue in this light, that artists never read at all. The landscape in question, being, like all Sir John Millais's landscapes, not "composed" at all (to all appearance), but simply a transcript from Nature, and representing a scene in a half light, is not striking at first sight, but it grows upon one very much as it is studied (it is one of the pictures that will bear study), and we feel how true it is in effect both in foreground and distance; poetical too it is in its result, but it is the poetry of the scene itself, not of the picture, which seems totally free from any attempt to produce an effect, or to do anything but copy Nature as faithfully as possible, within the limit of the powers of painting. This last qualification is important, because there are painters who wreck themselves by attempting a closer imitation than can really be achieved, thereby losing all breadth and tone; Sir John Millais never, in these days at least, carries realism to the verge of hardness. The scene, we should observe, appears to be on the outskirts of a deer-forest. The work will be a valuable addition to the small but remarkable series of landscapes by this gifted painter. Of his large portrait of Mr. Gladstone this year (361) we cannot say much, and we fear it has generally been felt not to be a success; its reputation being perhaps killed in advance by its far more brilliant predecessor a good many years ago, the standing portrait of Mr. Gladstone, one of the most remarkable portraits ever executed by ancient or modern artist.

Mr. Orchardson's work is one of the first things one looks for each year, because he is one of the few painters who not only has a style of his own but who paints pictures which have an intellectual significance and form a "criticism of life." In the latter sense he has disappointed us this year, his principal picture being only a collection of people seated in a room and forming "Portraits" (235). In regard to pictorial effect and harmony of colour the picture is in his best manner, but of course one cannot feel the same interest in a collection of portrait figures who tell no story that one does in such imaginative scenes of history or society as Mr. Orchardson has been wont to give us. Mr. Seymour Lucas, on the other hand, is unusually successful and interesting in his historical scene representing "Louis XI." (291) acting the gracious monarch in a morning call in the house of an artisan. The naturally shrewd and cynical cast of features in the countenance of the old fox, with which the desire to appear the benevolent monarch evidently struggles, is represented admirably, and this is something like a real personification of a character in history, not a mere stage figure labelled with the name. The woman and child are very reverential to their guest; the face of the husband, turned towards his wife but unseen by the King, does not convey by any means the same serious view of the situation. Altogether, this is a very clever and dramatically expressive work. Another historical painting in the same gallery, Mr. Crofts's "Whitehall, January 30th, 1649" (216) has also the merit of reality, save and except as regards the building itself, which is certainly not well painted. The spectator is among the crowd of horsemen in the road, Puritan soldiers on guard, and looking up at the scaffold, on which are conspicuous the figures of Charles and Bishop Juxon at the moment when the King gives something into his keeping, and the Bishop holds out both his hands, in an attitude in which eager attention and reverence for the King are touchingly combined. The figure of Charles is dignified and characteristic; as even a Puritan poet said,—

"He nothing common did or mean
Upon that memorable scene."

These two figures stand out as very real and

life-like in conception; they are the principal figures in the scene, though on a small scale. The painter had a difficult task in dealing with the foreground figures, in representing a number of mounted men all turned away from the spectator and looking towards the scaffold; he has partially broken the monotony of this treatment by showing one of the Puritans turning round to repress the zeal of a belaced cavalier who mourns with clasped and uplifted hands. The painter is to be credited with a serious and powerful rendering of one of the most remarkable scenes in English history; a picture which has the rare merit of giving us a more real and vivid conception of the scene, without which quality a historical painting (so-called) is a mere fraud and pretence.

Can the same be said of Mr. Gow's "After Waterloo: 'Sauve qui peut!'" (123) It is a variation, at all events, from the conventional treatment of such a scene. The artist shows us not a wide field of battle, with clouds of smoke, but a small portion of the road to Gemappes, which we are told in the accepted accounts was choked with the stream of fugitives and with wounded and dying men. Napoleon and some of his staff ride down the road in the middle of a medley of men and horses, a camp waggon driven by a woman in front of the group. This does not seem true: Napoleon was probably far ahead of most of the fugitives; he and his staff being well mounted would most likely have made a quick cut across country and struck the high road in advance of the throng. The look of Napoleon in the picture, somewhat dazed in aspect and forgetting to guide his horse, is dramatically effective, but we think out of keeping with the character of the man, who was always cool-headed. It does not therefore impress us as real, but it is a very clever painting, with much to study in the various figures.

Mr. Dicksee's large picture of the "Redemption of Tannhauser" holds a very conspicuous position in the rooms, its claim to which, except in regard to size and number of figures we confess we cannot see. Mr. Watts's contribution, a study of an old white horse (437) his coat stained with the rust of his constant chains, is pathetic in intention; it is an appeal on behalf of the suffering and patient brute creation, and as such to be regarded with respect; it is what may be called a moral picture, and its intention in this sense is not perceived, we imagine, by many who see it; but we fear that pious moral intentions do not make a picture, and the work is from an artistic point of view a mistake. Another animal painting, without a moral, we confess, but much more successful as a painting, is Mr. Swan's powerful picture of "a lioness defending her cubs" (614); the little animals are half-hiding behind their mother, yet spitting and snarling at the same time; the lioness crouches with an expression of determined ferocity against an unseen foe whose presence is indicated by an arrow in the ground. Mr. Collier's "Death of Cleopatra" (551), a very large picture which hangs opposite the entry from the octagon, is essentially a very brilliant picture of an Egyptian architectural interior, painted with great power; but the stout recumbent figure of Cleopatra extended on a couch and lightly swathed in its semi-transparent coverings, is a most prosaic conception; one of the attendant maidens has fallen on the pavement in a swoon, the other sits at the head of the couch in a somewhat *nonchalant* attitude. Remembering the wonderfully tragic and pathetic character of the scene as presented by Shakespeare (to which the picture evidently refers), one can only regard this as another of the numerous instances in which English painters have reduced a great poetic scene to mere prose. Mr. Chevallier Tayler, on the other hand, in "The Last Blessing" (758) a scene at the death of a peasant boy, has treated a scene in ordinary life with real pathos. The priest, a short and rather coarse-looking personage, stands at the foot of the bed in the act of benediction; the dying invalid's countenance is fixed on him, the mother bows her head at his side; the father, a rough working-man, kneels with reverence of posture but almost expressionless countenance. There is a truthfulness in the whole scene which raises it above the ordinary level of pictures of this class. Mr. Walter Urwick's "A Worcestershire Hop-garden" (805) is fine in colour and original in style, but unreal; the figures are specimens of the ideal or sentimental peasant who exists chiefly in the works of a certain idyllic school of painters.

A strong contrast to this is Mr. Stanhope Forbes's frankly realistic picture "By Order of the Court" (1,146), a sale by auction of effects which, from the heterogeneous mass of objects on the table, painted with the greatest care and truth, does not seem likely to realise very much. The picture is perhaps hardly so interesting as the artist's last year's picture, "The Health of the Bride," but it has the same quality in the careful study of character in the personages, each of whom has his or her specially-marked character and physiognomy; they are not so many "figures" but so many real people, whom we should know again, and whose idiosyncrasies of character we can estimate from their personality and behaviour. The nature of the scene has allowed the artist to give more force to his representation of the humbler class of persons represented by contrasting them with the lady and gentleman who have come to the sale to see what they can pick up; on the opposite side of the group of buyers a sad-looking elderly woman holds out her hand in a timid and helpless kind of way to make a bid. The scene is mainly lighted from a window at the back, through which one sees the heads of curious spectators looking in. This arrangement throws a good deal of the interior group more or less into shadow and gives a rather heavy and dulled effect to the whole; but there is something to study in every figure.

Mr. Logsdail's "Ninth of November" (1,028) is another realistic picture far inferior in delicacy of characterisation to the last-named, but a success, as it deals with a subject in which, in every sense, the colours can be laid on thick. It represents the Lord Mayor's coach on Show-day, preceded by three liveried functionaries who are depicted with contemptuous fidelity; the crowd contains some good and interesting figures, and the whole scene, with its well-known architectural surroundings, is treated with a great deal of effect. It is exactly the kind of subject to bring out the special powers of the artist, who is a very clever painter of ordinary life and of commonplace crowds in all the height (or depth) of their commonplaceness. Mr. Dendy Sadler's "Hunting Morn" (1,034) is a very clever realisation of what must have been the style and personality of the well-fed John Bull type of country gentleman, when the human machine was entirely given over to the work of hunting and feeding, and no brain exercise interfered with its expression of rubicund jollity. Mr. Eyre Crowe's "Rifle Match at Dunnotar, N.B." (794) may be classed with these in regard to the type of subject, a realistic picture of actual life, but it is far superior to them in delicacy of taste and handling. The rifle match takes place near a headland projecting into the sea, at the extremity of which the target is situated; a man lies prone in the foreground taking aim, and other figures stand round in different attitudes of interest, conspicuous among whom a tall big man with his Tam o' Shanter on the back of his head, planted in a sturdy attitude behind the marksman, is a capital figure, evidently a faithful study from life. The distant sea is hardly a success, but the general open-air feeling of the scene is well conveyed, and the painter has entered thoroughly into the spirit of it. Is the marksman aiming straight for the target, is a query that may occur; his rifle appears to point rather to the right of it. Mr. Eugène de Blaas has a very clever picture, "Scandal" (1,062), which however is only of the same young women and the modest and conscious man who looks in an embarrassed manner at his round hat, with whom we are familiar in other pictures by the same artist.

Mr. G. Hitchcock's "Tulip Culture" is one of the specialties of the year (750), a bright and effective transcription of the appearance of the successive beds of the flowers, each bed of one prevailing hue; one or two figures are introduced but the object of the picture is the succession of tulip beds with their bright colours. It is not a subject out of which a picture in the proper sense can really be made; but it is a pretty incident worth reproducing in painting, and makes a point in the exhibition. Another very clever piece of painting which cannot be passed over is Mr. Chadwick's "A Greek Girl" (799) in which however the figure is very poor, but the painting of the white polished marble architecture, the strip of sand and the dark blue of the sea beyond, forms a leaf taken out of Mr. Tadema's book with remarkable success.

Among landscapes the largest are not the best, and Mr. Goodall's "Thames from Windsor Castle" (366), and Mr. Vicat Cole's "Thames at Greenwich" (390) belong to that painfully respectable order of large landscapes about which it is almost equally impossible to say either good or evil. "Summer Time in the Channel Islands," by Mr. Henry Moore (257), is one of those paintings of dark fresh breezy seas the equal of which cannot be found at the present day among the works of any other nation, though one or two French painters appear to have been "trying it on," so to speak, with doubtful success. Mr. Shaw's two seas in "A November Day" and "Off Bolt Head" (200) are good examples of his rendering of the sea, as Mr. Peter Graham's "Low Tide" (215) presents another aspect of it as it appears to him. All these pictures contain remarkable truth in their way, each representing one aspect of the sea as it appeared to one artist. Mr. Mackworth's "Cloud Chariot" (156) is a fine and unusual painting of the grandeur of cumulus clouds, which however seem a little too thick and heavy in substance and too yellow in tone. Mr. Herkomer's "Our Village" (143), a view of the open space in the centre of a village with groups of people and children scattered about irregularly, has the defect that it is in no sense a picture. Mr. H. W. B. Davis's two pictures on the Wye (68 and 780) are only variations on the same theme, a sunlit landscape, rippling shallows, and peaceful white cattle loitering in the foreground; they are painted with great brilliancy and wonderful truth of texture and local colour—are almost deceptive in the effect on the eye, in fact; but they are not more than that.

Among Mr. J. C. Hook's works the most prominent in his usual style is "Last Night's Disaster" (75), a morning sea after a gale, and some men employed in clearing out an unfortunate wrecked boat from the sand which has been piled round her; but the painter also sends an example of what may be called his "brimming Holland" style of picture, "A Dutch Pedlar" (309), one of those paintings of calm and full river waterways which he paints with such sympathy. Mr. F. Brangwyn, in "Stand by" (248) and one or two other works of the same type, is treating shipping craft with spirit, knowledge, and originality, but why veil them all in such monotonous grey tones? This is not truth; the deck of the steamer in "All Hands Shorten Sail" (76) for instance, is not the colour that the deck of a steamer really is; it is merely conventionalised grey tone to produce a certain effect of cold and desolation in the whole work. One of the finest sea-pictures of the year is Mr. Fraser's of a deserted ship on a reef (1,107); this is a powerful work both in regard to execution and sentiment. Of landscape and portrait, and miscellaneous works of various types, we may have some further notes to make.

Dispersal of the Wells Collection.—The sale will be begun on Saturday, May 10, by Messrs. Christie, Manson, & Woods, of the late Mr. William Wells's fine collection of porcelain, water-colours, and ancient and modern pictures. In the latter are included examples of A. Van de Velde and W. Van de Velde, Hobbema, Rembrandt, and Murillo (the Magdalene); together with several paintings rendered popular by engravings, such as Wilkie's "Distraining for Rent" and "Jew's Harp;" J. Creswick's "Killarney;" T. Webster's "Smile and Frown;" E. W. Cooke's "Rembrandt's Mill;" W. Collins's "Hop-Pickers;" and Sir Edwin Landseer's "None but the Brave Deserve the Fair," "Shepherd's Grave," and other works by him, all painted especially for Mr. Wells.

Royal Military Exhibition, 1890.—An exhibition of soldiers' industrial work, military equipments and manufactures, a loan collection of pictures, and other objects of interest in connexion with the military service, past and present, was opened on Wednesday by the Prince of Wales. The exhibition is being held by the kind permission of the Commissioners, on a portion of the grounds of the Royal Hospital, Chelsea, in aid of the establishment and maintenance of Church of England Soldiers' Institutes. These institutes are club-houses, are open and free to every man wearing the Queen's uniform, and are described as absolutely unsectarian. Those which have been established at Aldershot and Colchester show how much such institutes are appreciated and made use of by soldiers of all denominations.

ARCHITECTURE AT THE ROYAL ACADEMY.—II.

1,710. "A Theatre Façade": Mr. W. T. Horton. This is a pretty pen perspective drawing, a kind of practical protest in favour of a less pretentious and more simple and sober style of architecture than is at present considered "generally necessary" for theatres. The basement story, in which the entrances are placed, is rusticated, there are plain walls above and an open loggia of rather Eastern character in the upper stage. The two side portions are advanced slightly as wings. It is not very easy to see how this should express the internal plan of the entrance portion of a theatre; a plan should have been given. This quiet sort of architecture is no doubt preferable to the vulgarities of average theatre design in this country, but we do not know that it would suggest a theatre, which after all is a class of building to which show and a kind of *bravura* of architectural design, if it be carried out with refinement, seem naturally to belong.

1,711. "Design for Premises, Market-square, Dover": Mr. Kingsley Oliphant. A street front with a shop on ground story, treated with elliptical arches with dark and light courses and voussoirs, thus separating the shop portion from the rest. The upper portion, in light stone (it is a water-colour elevation), is very rococo in detail, the rather by comparison with the plain mullioned windows in the centre portion: but it has a certain special character as shop architecture.

1,713. "Notting-hill Free Library": Messrs. T. P. Figgis and R. H. Wilson. This is something really original, at all events. It is a brick building with stone dressings, the angle and entrance marked by square turrets with vertical strips of stone run up them and terminated by a niche with foliage ornament: the salient point in the design is the treatment of the upper part of the front over the main windows, which is treated as an expanse of flowing foliage carving with three statues in front of and partially involved in it. As far as can be judged from the drawing, which is rather rough in execution, we should say the detail of the carving was much too large and coarse for its situation and for the scale of the building, and that the general design had better be reconsidered in detailing it for execution (we believe the building is not finished); but the architects are nevertheless entitled to the credit of a bold and new treatment of a district library front, which will give the building a special and picturesque interest.

1,716. "Bed-room in a Country House": Professor Aitchison, A.R.A. We may as well consider this along with No. 1,744, which bears the same title, and of which a reproduction in monochrome will be found among the illustrations to the present number. Both are rooms wainscotted to a considerable height, with a pattern paper over. In 1,716 the panelled wainscot is left plain, apparently stained oak, with a mantelpiece in the centre, which we presume is of polished walnut or some such wood. There is a main shelf and an upper one with colonnettes of Renaissance type: the grate is surrounded by a tile border of prevalent green tone with a warm-toned pattern; the paper above leans to yellower greens and yellow touches. In 1,744, as will be seen, the panels of the wainscot are treated with inlay, and the mantel is more important and of more dignified design than the other; the grate tiles in this case are light blue in ground tone, and the wall-paper is a prevalent green powdered with light flowers. In the matter of harmonious colour-effect we rather prefer the simpler scheme of 1,716; the inlay ornament in the one illustrated seems a little too busy, and leaves no rest to the eye; the mantel is very rich and effective: whether it is not a little too important in style for a bed-room might be a question.

1,717. "New Font and Canopy, Bentham Church, Lancashire": Mr. W. R. Lethaby. This is a piece of really original work. The font is a solid circular marble one, with a bold moulding at the base and a curved enrichment round the upper edge, it stands on a plain octagonal base of less diameter than the bowl: the canopy is supported on eight broad flat wooden supports radiating (on plan) from the centre of the font, and carved into a pierced foliage design of very rich character: these supports carry a cornice and terminate in pinnacles above, the centre of the canopy is crowned by an armillary sphere as a terminal: we do not know whether this has any special significance; if not, it is not a good decorative form for the position; but Mr. Lethaby may be congratulated on having produced a font design which is effective in itself and quite original.

1,718. "Design for Church of St. Thomas, Kensal-road": Mr. John T. Lee. A good coloured perspective view hung high, showing a red brick and red-tiled church with stone dressings, with windows in a very simple style of tracery; there is a bell-cot over the east gable of the nave. There is little attempt at architectural effectiveness, but the building is solid and unaffected in style, and a satisfactory example of modern Gothic of the simpler variety.

1,721. "Design for a Corner of a Boudoir": Mr. T. Armstrong Stenhouse. A white-wainscotted room, with a frieze of white rococo ornament on a gold ground; the "corner" is seen through a wide arch below the capping of the wainscot, a window on one side and a bookcase on the other; the carpet and upholstery are in harmony with the general scheme, which has a bright and attractive effect.

1,722. "Catholic Church, Calcar, Germany": Mr. H. W. Brewer. A pencil edition of the drawing published in the *Builder* of March 8, 1890.

1,724. "Staircase in St. Maclou, Rouen": Mr. Arthur E. Bartlett. A good specimen of rather slight and free pencil sketching.

1,725. "Melrose Abbey: South Transept": Mr. John Begg. This is an admirable drawing of a bit of ancient Gothic architecture; executed as a monochrome on tinted paper, the whole exceedingly carefully and correctly drawn.

1,729. "Corpus Christi Priory, Manchester: sketch design": Mr. Leonard Stokes. This is a remarkable and unusual design; it appears to be architecturally a kind of Christian Pantheon, the plan showing a circular church with an arcade round, a projecting porch or entrance, and an apse opposite. The main drawing is a view of the interior. Round the lower portion runs a low and solidly-built arcade in banded courses of red and white stone; above a tier of lofty pointed arches with deep splays and each containing a narrow window; above this is what might be called a triforium arcade of round arches on shafts, placed in the position of a frieze. Above the arcade is a cornice and a hemispherical dome, the surface of which appears to be covered with decoration rather too faintly indicated to be made out in the sketch. A flat pilaster strip, but without a capital termination, runs right through from the floor to the dome cornice, between each bay of the arcades. We hope this work is going to be carried out; the sketch promises something very fine and original in the way of interior church design.

1,730. "St. Saviour's, Southwark: New Nave:" Sir Arthur Blomfield, A.R.A. We give an illustration of this drawing in the present number; it is a pencil drawing very slightly and delicately tinted, and which consequently does not reproduce in a manner to do justice to the original, but it serves to show the design and renders description here unnecessary. The question of building a modern nave in a pure reproduction of Mediæval architecture, instead of giving it frankly the aspect of a modern addition, is one on which, as we have before suggested, there is a good deal to be said; but if it is to be done, it could not be done with better taste and feeling, or in a manner more in harmony with the ancient portions of the church, than in the design here shown.

1,731. "Sculpture Gallery, Avery-hill": Mr. Thomas W. Cutler. This is a very good water-colour drawing showing a gallery built of very sumptuous materials but of rather ordinary design. It is a long room with an order of dark red marble pilasters, dividing the wall into bays, between which the wall is treated as a large panel of grey marble with a darker border. There is a plinth of dark red marble. Small rectangular windows in the upper part of the walls between the pilasters are filled with stained glass, with good effect. The Gallery is suited for its purpose of exhibiting sculpture, but this device of planting pilasters at wide distances along the walls of a picture gallery or sculpture gallery, however sanctioned by fashion, is a very poor and commonplace architectural treatment, in however costly materials it may be carried out.

1,734. "6, Carlton House-terrace": Messrs. Ernest George and Peto. A drawing of an interior of hall and staircase, in a very sketchy style in brown ink line drawing, and which gives no information as to what is new and what is old. We presume the coffered ceiling is part of the new treatment. If the pilasters and cornices to the doors are part of the new treatment, they are ill-proportioned and too wide for their height. Not a bit of detail is really discernible throughout the drawing; nothing but a kind of scribble which produces a generally picturesque effect, and leaves all detail to the imagination. That is not the way to draw architecture.

1,735. "Beauvais Cathedral: sketch of Apse": Mr. H. Wilson. A slight but very spirited water-colour sketch of the exterior of the apse, with its scaffolding and buttresses, the only fault of which is that it does not seem to give the scale of the building, especially by comparison with the roughly-sketched figures in the foreground.

1,733. "Church of St. Luke, Richmond; interior:" and 1,736, "St. Mary's Chapel, Mill Hill; interior:" Messrs. Goldie, Child, and Goldie. These claim mention as excellently-executed pen drawings of very solid and correct modern Gothic interiors, of which however there is really nothing to be said except that they *are* solid and correct. No. 1,736 was illustrated in the *Builder* for April 27, 1889.

1,738. "New organ case, St. John's College Chapel Cambridge:" Mr. J. Oldrid Scott. A carefully executed pen drawing. The organ is divided into two equal portions, symmetrically treated, and appearing side by side beneath two contiguous arches. The lower part of the case is coved over as a bracket, and the pipes arranged in turrets, square or lozenge shape on plan, with wooden cresting and perforated ornament over the upper part. The general effect is pretty, but a little angular in line. It does not suggest any new ideas for organ cases, of which we are a good deal in need.

ON THE PLANNING AND CONSTRUCTION OF HOSPITALS.*

THE subject for our consideration this evening is one which beyond all others demands from the architect the utmost knowledge of and attention to the laws of health. For while in any building devoted to the reception of large numbers of people in normal health careful precautions are necessary in order that nothing in the structure itself or its surroundings shall prevent or hamper the maintenance of a proper standard of health, in a hospital the very fact of bringing together a large number of sick and wounded people is of itself an element of special danger, and calls for special means of defence.

A hospital is primarily a building devoted to the care and treatment of the sick and injured poor; in its secondary and scarcely less important function, it is a training-school for the teaching of the science and art of Medicine and Surgery.

Now, in order that both these functions may be performed to the best advantage, it is necessary that large numbers of patients should be brought together in one hospital, for it will easily be seen that the task of administering one hospital for 300 beds will be far easier and less costly than that of administering ten hospitals for thirty beds each; and for teaching purposes the larger the amount of material the better both for teachers and students.

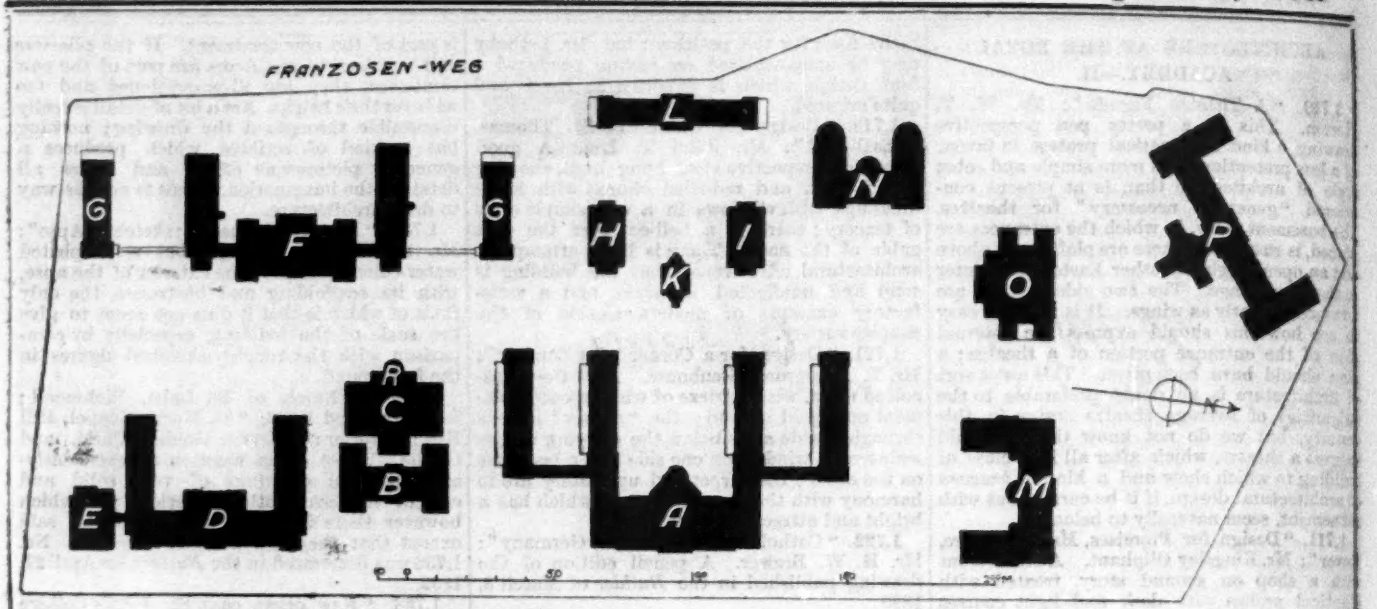
The risks, therefore, inherent on the aggregation of large numbers of sick people are, and must be, encountered, because it would be impossible to furnish the necessary medical and surgical aid to the sick poor in any other way.

Let us consider briefly of what these risks consist, and how the experience of the past helps us to overcome them.

In the first place, it must be remembered that a hospital ward is filled either with people whose condition is that of disease, the exhalations of whose bodies are laden with infection; or with those with open wounds, to the exposed surfaces of which the contact of impure air means the production of a special class of traumatic or wound diseases. In either case it is the contamination of the air of the ward which retards or prevents the recovery of the patients. This contamination of air may be accomplished in several ways: it may either be by the overcrowding of patients in the wards; by imperfect ventilation; by improper arrangement of buildings; by defective drainage, or by defective keeping or maladministration.

As an example of all these defects, the old

* A paper by Mr. Keith D. Young, F.R.I.B.A., read on the 2nd inst. before the Architectural Association, as elsewhere mentioned



Halle University Hospital.—Block Plan.

Hôtel Dieu at Paris was full of instructive lessons. This remarkable institution, whose origin as a hospital for the sick dates certainly from the twelfth century, possibly from earlier times still, had become, at the time Tenon wrote his notable "Mémoires sur les Hôpitaux de Paris," an enormous mass of buildings built partly on one bank, partly on the other bank of the river, the one part connected to the other by two bridges, one of which was actually occupied by wards. Into this vast network of buildings, where ward opened into ward, so that each was, as it were, but the ante-chamber to the next, and consequently the air in each was freely in communication with that of all the others, between three and four thousand patients were crowded. Every imaginable case of disease, including even lunacy and infectious fevers, was received, and a large proportion of the patients had to lie two, four, and even six in a bed. With remarkable prescience Tenon points out one by one the insanitary conditions of this hospital; the want of ventilation to the wards caused by the crowding of offices of all kinds, blocking up the free air-space on all sides, and by the placing of wards side by side; the crowded condition of the wards; the abominable and "unspeakable" state of the latrines; and the infected state of the whole atmosphere of the hospital consequent upon these and other defects. The result of all this was that operations which were performed with comparative safety in other hospitals were almost uniformly fatal in the old Hôtel Dieu.*

The example of the Hôtel Dieu has been often quoted, but the lesson which it teaches cannot be too strongly enforced, as it lies at the root of all hospital hygiene.

Coming now to more recent times, the experience, dearly bought indeed during the Crimean War, showed how terribly the injuries wrought by human weapons can be multiplied and intensified by foul air. In the hospital at Scutari,—which at one time, according to Miss Nightingale, had 2,500 sick and wounded under its roof,—two patients out of every five died; while in the huts on the heights above Balaclava the mortality did not reach three per cent. The lessons thus taught have not been without their value, for the great wars that have followed, notably the Civil War in America and the Franco-Prussian War, have been comparatively free from wound diseases. Instances could be multiplied almost indefinitely showing how in this hospital persistent attacks of pyæmia or erysipelas were traced to the contamination of the ward air by emanations from the foul linen in the closely-adjacent laundry; in another, similar evils were traceable to the close proximity of the out-patient department or *post-mortem* room to the wards; and in a third, how foul, leaky, and unventilated drains and cesspools produced a chronic condition of unhealthiness both in patients and staff.

Time will not permit me to enlarge more on this part of my subject, but the vital importance of it cannot be too strongly insisted upon. Cleanliness supreme and all-pervading, cleanliness of air, of soil, of building, is the key-note of every point of good hospital construction and administration.

In considering the principles which should guide us in the planning of a hospital, the first question to be determined, assuming that the number of patients and staff and the necessary classification has been settled, is the position of the various buildings in relation one to another.

There must be in every general hospital,—and it is with this class of hospital only that I am now concerned,—at least five separate departments:—1. The administration, which comprises all the purely official and domestic parts; 2, the nurses' quarters; 3, the wards; 4, the out-patient department; and 5, the mortuary. In many important hospitals of recent date these have been again subdivided, and separate buildings provided for kitchen, offices, and the operation-room. The main fact, however, which I wish to impress is that all these five buildings should be as separate and distinct as it is possible to make them.

In most hospitals erected during the last century you will find that every department, including also frequently a laundry, is housed in one building, and that every part of that building is in more or less direct atmospheric communication with every other part. The evils of this arrangement have over and over again been demonstrated, and many such hospitals have been within recent years either demolished or very materially altered, much to the gain of the patients.

As an example of what is thought necessary by eminent medical authorities in our day, I have here the plans of two recent hospitals,—the University Hospital at Halle, and the Johns Hopkins Hospital at Baltimore.

The University Hospital at Halle consists of sixteen detached buildings, of which thirteen belong to the hospital proper, the remaining three being devoted to teaching purposes only. The large central block (see block plan above) with four wings is the surgical department, and forms in itself a complete hospital in all but the kitchen offices. The E-shaped block in the south-east corner is the Gynæcological department, with the Director's residence adjoining; and the two blocks between this and the surgical house are respectively the kitchen offices and the engine-house. Behind these is another E-shaped block, with two detached buildings, one on either side. These together form the Medical Department. The long building at the extreme west contains isolation wards, and the two smaller blocks between this and the surgical house are for additional isolation, the small building between them being the chapel. The E-shaped block to the north of the surgical house is devoted to diseases of the eye, the throat, and ear.

The Johns Hopkins Hospital at Baltimore, the munificent gift of the citizen whose name it bears, occupies a site rectangular in form and thirteen acres in extent. The buildings are twenty-two in number, and are all connected together by corridors. The corridors, however, which connect the ward blocks communicate only with the basements under the wards. The communication between the wards themselves being by way of the flat roof over the corridors. Thus the wards themselves are practically detached buildings. In the block plan (see next page) the large block marked A is the administration building, B B are blocks for paying patients; C C, bath-houses; D, dispensary and drug-store; E, kitchen and domestic apartments; F, nurses' house; H H, pavilions with octagonal wards; J J, pavilions with rectangular wards; K K, isolation blocks; L, lecture theatre and students' building; M, out-patients' department; O, mortuary and *post-mortem* room; P, laundry and wash-house; S, greenhouse. The principle of absolute detachment of wards is here carried out, but not quite to the same extent as at Halle, while the plan of restricting the height of the wards to one story only is strictly observed. The progress of this hospital will be observed with especial interest from the fact that it is the outcome of the matured experience and observation of one of the most experienced surgeons in the United States, and that no time, pains, or money have been spared to carry into effect what have been thought the essentials of perfect hospital hygiene.

In these two hospitals the principle of absolute severance between the several parts is carried to an extent that has not, so far as I know, been attempted in this country, and certainly could not be carried out except at enormous cost in London or in any great town. There is, too, in this country a strong opposition to the system of detached buildings, and it would probably be very difficult, if not impossible, to get any Committee to approve of a plan in which no covered communication between the wards and the administration department existed.

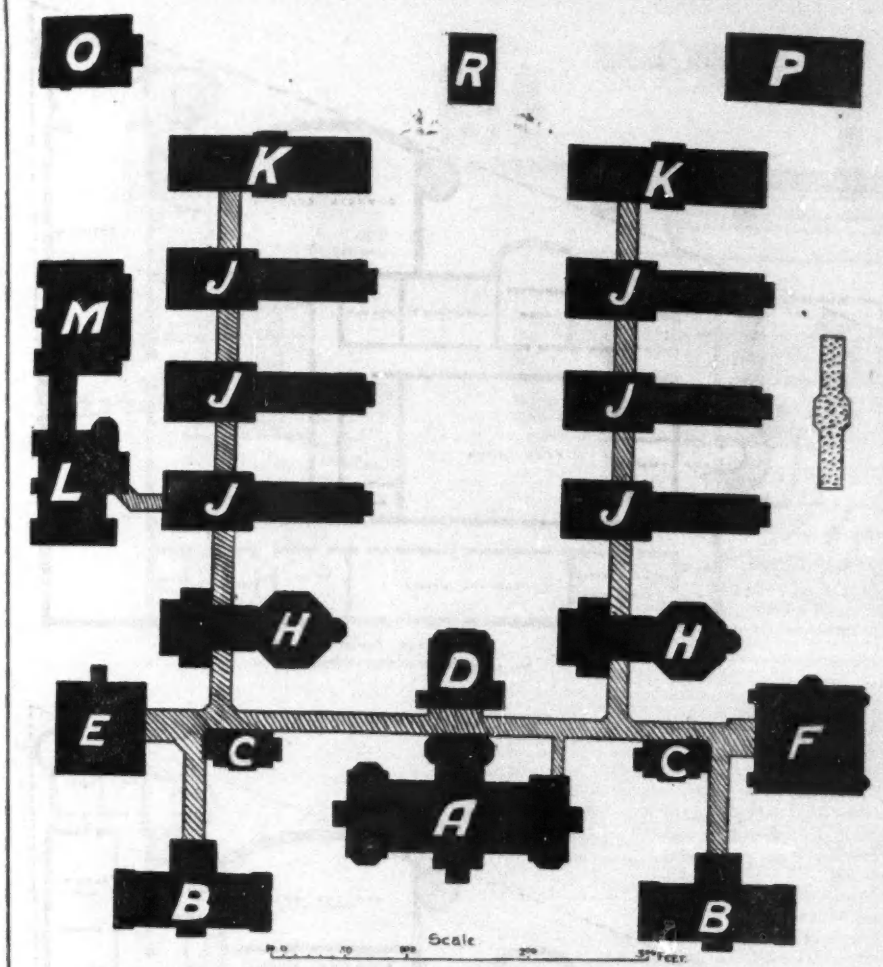
Assuming, then, that the wards and the administration building are to be connected by means of a corridor, it is essential to provide that any interchange of air between the two shall be, as far as possible, abolished.

In the Great Northern Central Hospital we have endeavoured to accomplish this upon a very limited site.* The wards are attached to the back portion of the administration building by a short piece of corridor, which is ventilated on both sides, and the lifts and staircase, which necessarily form shafts of communication between the different floors, are kept entirely outside the ward pavilion.

The necessity for keeping the mortuary building absolutely detached is sufficiently obvious. Nothing could be more fatal to the health of the living than any communication between the wards and air tainted with the emanations from the dead.

* We published a view and plan of the new Hôtel-Dieu at Paris (M. Diet, architect) in the *Builder* for January 3, 1880 Ed

* A view, plan, and description of this hospital were published in the *Builder* for December 28, 1889; and further descriptive particulars on the occasion of the partial opening of the hospital (see *Builder* for July 26, 1890).—Ed



The Johns Hopkins Hospital, Baltimore—Block Plan.

The out-patient department should be kept separate, because the air of the waiting-rooms, and in a lesser degree of the consulting-rooms, becomes much vitiated from various causes, and also because it is practically impossible to foretell what cases of an infectious disease may at any moment present themselves.

The nurses' home may, or may not, be in direct communication with the hospital proper. For the sake of the nurses themselves, probably the more complete the severance is the better.

Let us now consider these various departments more in detail.

First, then, the administration department. Under this head are comprised the official quarters, including the Board-room, Secretary's Office, and Matron's Office,—the residential quarters comprising the rooms for the resident medical staff, the Secretary or Superintendent, the Matron, the Steward, and the servants,—and the domestic department including the stores, kitchen offices, and linen-room.

The detailed planning of the administration building will necessarily vary according to the size of the hospital, and no very minute rules can be laid down respecting it. I may, however, point out that unless the kitchen offices are placed in a one-story separate building they should certainly be put at the top of the house. There is no practical difficulty attending this arrangement, examples of which may be seen at the Hospital for Consumption, Brompton,* the Great Northern Central Hospital, and the Hastings Hospital.†

The provision of ample store accommodation is also an important point. It is far better to provide too much store room than not enough, for the difficulty of increasing store room in an existing building is very great indeed.

We may now pass on to the wards, which, together with their offices, form the most important part of the building.

Formerly a ward was regarded merely as a room into which a certain number of beds were to be put without much thought being taken of how the well-being of the patients would be affected by the conditions under which they were to be housed. The old Hôtel Dieu, at Paris, was, of course, a typical instance of how wards should not be arranged. At La Clinique, another large Paris hospital, the wards were long and narrow, and the windows were placed in the two ends; between these windows no less than eight beds were placed. Again, in many old hospitals the wards formed a series of rooms arranged on each side of a corridor, which formed a channel of communication connecting all the wards together. Yet another form of ward is what is called the "double ward," which consists of two long wards placed side by side with the windows in the sides, and with openings cut through at intervals in the dividing wall. This arrangement gives four beds between the opposite windows. The fault of all these forms is in a greater or less degree the want of efficient ventilation, and it was the recognition of the evils consequent upon a defective air-supply that resulted in the pavilion system of wards.

The essential feature of the pavilion system is that the wards are long rectangular buildings, projecting out usually at right-angles to a main corridor. The space between the pavilions should be equal to at least twice the height of the buildings, and the long axis of the wards should be nearly due north and south, so that the maximum amount of sunshine available should be admitted to the wards.

The question of the number of stories admissible in a ward pavilion is one upon which authorities differ materially. In many of the most recent hospitals in France and Germany, and notably in the magnificent hospital at Baltimore, the wards are restricted to one story only. Such a system is obviously a most costly one in the matter of site; and it seems to me that it is to be justified only on the score of really important benefit to be gained. Personally, I am unable to see any sufficient gain to be obtained at all commensurate to the enormous cost involved.

But,—and this lies at the root of the matter,—if two or three stories of wards are to be superimposed, each must be absolutely independent atmospherically of the other; there must be no shafts, whether for staircases or lifts, to communicate the air of one floor with that above.

In nearly all the earlier pavilion hospitals you will find that the staircase and one or more lifts, and sometimes that abomination called a dust-shoot, are all closely adjacent to the ward. It is so at the Herbert Hospital, Woolwich,* one of the earliest pavilion hospitals, at Leeds, at the Norfolk and Norwich, and at St. Thomas's.†

At the Great Northern we have placed the staircase and the lifts in such a position that they cannot form shafts from one ward to the other. It would appear from the plan of the Johns Hopkins Hospital that the staircase and the lifts are so placed that they must form channels of communication between the different pavilions by way of the basement; but the system of artificial ventilation is intended to act in so perfect a manner that all chance of such an occurrence is obviated.

In considering the internal arrangement of the wards, the first point to be settled is the space to be allotted to each patient. Space in a ward is very commonly referred to as cubic space only; but it is equally important to consider floor-space, and the distance to be allowed between each bed and its neighbour. Upon this question of space authorities differ widely. In the table given in Mr. Snell's work, the floor-space varies from 69 ft. per bed to 149 ft., and the cubic space from 864 ft. to 2,544 ft. The last figures are those of the Hospital of St. Andrew at Genoa, whose wards are considerably over 20 ft. high. Now it was the opinion of so eminent an authority on ventilation as the late Professor de Chaumont that nothing is gained by making the height of a ward exceed 12 ft.; and in making calculations in actual practice he was accustomed to exclude all space in excess of this amount. You will see, therefore, how important it is to arrange your cubic space in relation to your floor-space, and not to increase the one at the expense of the other. In the first place, then, the wall space or distance from centre to centre of each bed should be determined. In a large ward, say for twenty beds, the space should not be less than 8 ft.,—8 ft. 6 in. or 9 ft. by preference. For the width of the ward, 28 ft. is a good dimension. It allows plenty of free floor-space in the centre of the ward, which is a point that must always be remembered, especially where clinical teaching is carried on. These figures give a floor-space of 112 ft. as a minimum. Taking 12 ft. as the standard height, you get a cubic space per bed of 1,344 ft. A height of 12 ft. will, however, be found, for appearance sake, too low for a ward upwards of 30 ft. long, and I think something must be conceded to one's sense of proportion.‡

Building Materials in Hungary.—We have been officially informed by the Commercial Department of the Imperial and Royal Austro-Hungarian Embassy, 11, Queen Victoria-street, E.C., that, acting on the initiative of the Minister of Commerce, who wishes to develope as far as he can all industrial enterprise in Hungary, a law has been passed granting for many years exemption from rates and taxes, and allowing certain reductions of rates, for the carriage of building material on the Hungarian State Railways, in order to encourage the establishment of new factories of every description and the working of mining undertakings.

National Physical Recreation Society.—At a meeting of the executive committee of this Society, held at the offices of this Society last week, it was reported that the Royal Agricultural Hall, Islington, had been secured for the purpose of the annual display, which has been fixed for the week commencing Monday, May 26, and will include mass gymnastics, physical exercises by girls, quarter-staff play, pole-jumping, reel-dancing, boxing, musical drill, football matches, and a house on fire, with the rescue of the inmates by the Metropolitan Fire Brigade.

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* View, plans, and descriptions were published in the *Builder* for November 22, 1879.—ED.

† A view and plans, with description of the design first prepared for the East Sussex, Hastings, and St. Leonards Infirmary, were published in the *Builder* for December 6, 1884. These plans were subsequently considerably modified, and circular wards added. For view and plans of the hospital as erected see the *Builder* for January 29, 1887.—ED.

* A birds'-eye view and ground plan of this hospital were published in the *Builder* for April 14, 1866.—ED.

† We gave a view and ground plan of the new St. Thomas's Hospital in the *Builder* for August 5, 1865. A view of the Albert and Victoria wards, and of the Chapel, as seen from the river, and a plan of the same, were given in the *Builder* for June 24, 1871.—ED.

‡ The remainder, with some notes of the discussion, in our next.

PHOTO-LITHO. SIMMONS & Co. 69, MARTINS LANE CANNON ST. LONDON, E.C.

CHURCH OF THE SACRED HEART, WIMBLEDON.— Mr. F. A. Walters, A.R.I.B.A., Architect.

No. 1785 Royal Academy Exhibition.

Illustrations.

SAINT SAVIOUR'S, SOUTHWARK.

SINCE the publication in 1881 of Mr. F. T. Dollman's valuable and profusely-illustrated work on the Priory of Saint Mary Overie, Southwark, the history of the church (now known as "Saint Saviour's") has been familiar to all students of ecclesiastical architecture, who owe the author a deep debt of gratitude.

The present nave was begun in 1839, and finished in the following year.

Without any reference to the architectural character of the work, its condemnation is carried in the fact that it is so constructed as to render its use in connexion with the transepts and choir impossible—the floor being raised 7 ft. 6 in. above the old level.

The work shortly to be begun consists in the first instance of taking down this modern building and erecting a new nave and aisles on the lines of the old structure, which was finally demolished in 1838.

It is believed that the whole of the old foundations remain intact, though how far this is the case, and of what value they may be if it is so, can only be determined after the removal of the existing superstructure.

Some small portions of the old work which still exist in the modern nave will be carefully preserved.

After anxious thought and consultation with those most interested in the work, and best qualified to form a correct judgment in the matter, it was decided that the proposed new building, while not professing to be an exact reproduction of what formerly existed, should be carried out on the old lines, and made to harmonise as far as possible with the beautiful work of the choir.

Until this portion of the work is completed the remainder of the church will not be touched, except so far as may be necessary for the safety of the fabric.

The architect for the new nave is Sir Arthur Blomfield.

COMPETITION DESIGN FOR SHEFFIELD MUNICIPAL BUILDINGS.

WE give the elevation and the three principal floor plans of the design submitted in the Sheffield Municipal Buildings Competition by Mr. John Slater and Mr. H. H. Statham.

The elevation is not of course, the one originally submitted; it is taken from an enlarged drawing made to $\frac{1}{10}$th inch scale, the original of which is hung in the Architectural Room at the Royal Academy. The drawing shows the detail a little more fully, but the design is exactly as sent in, with the exception of a slight modification in the treatment of the balustrade over the main cornice.

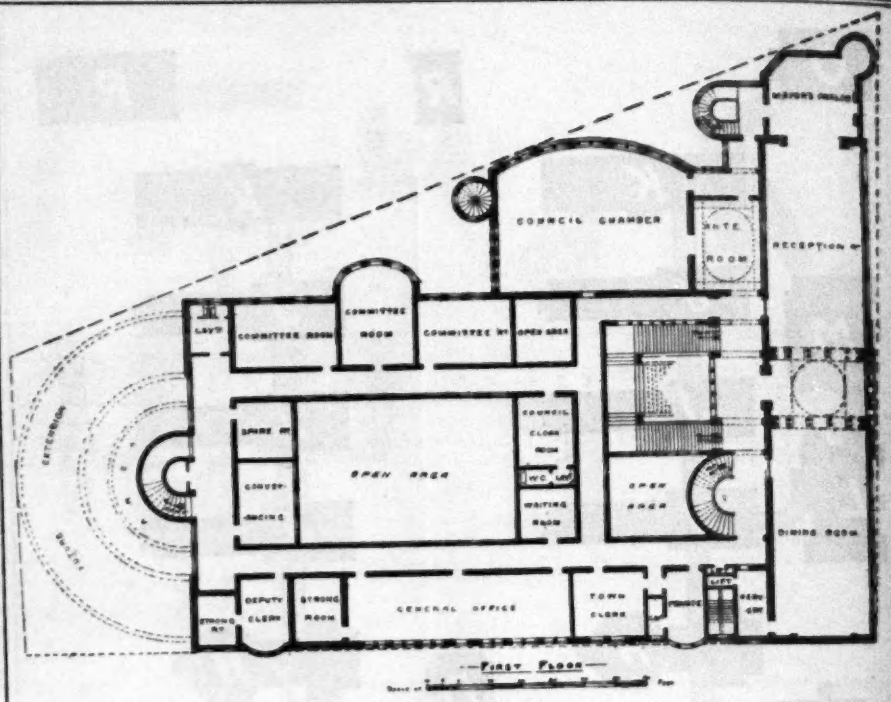
The following quotations from the report sent in with the drawings will explain the intention of the design:—

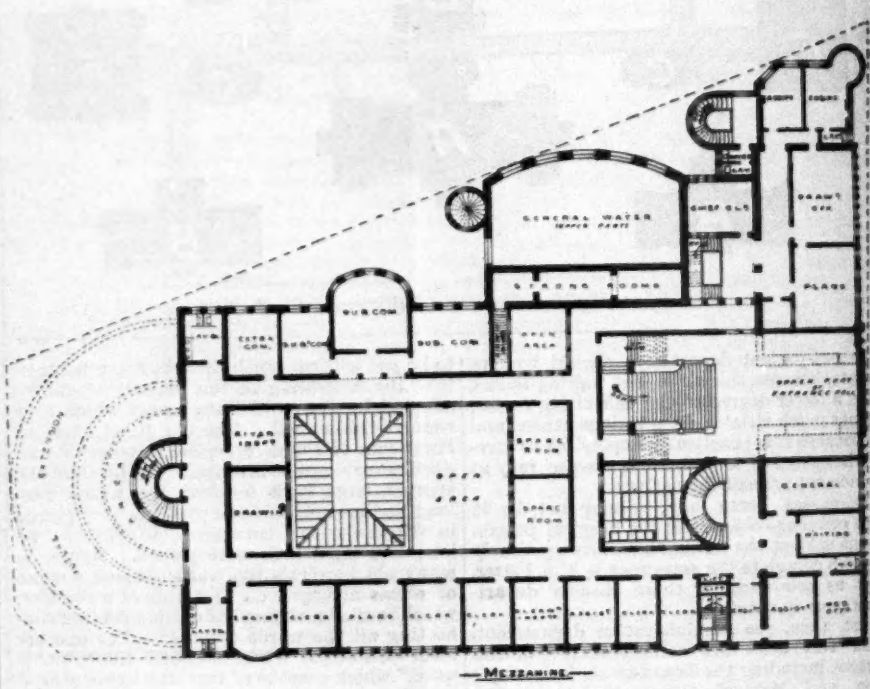
"The system adopted in this plan is to arrange those departments in which the rooms are comparatively small on a mezzanine between the ground-floor and first-floor, the general Water Office and the main entrance hall going up through both stories, thus giving more height and dignity to the entrance hall.

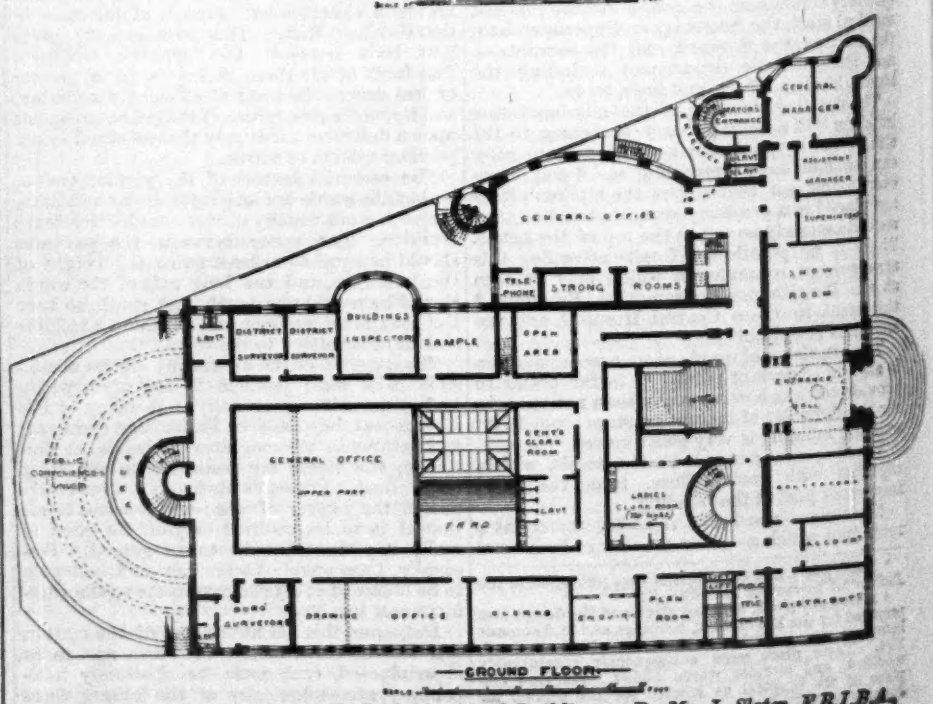
For a building in which state receptions are given, a state staircase is essential for dignity of effect; a staircase which is in everyday use for the traffic of the building cannot be kept in a fitting condition for receptions. This staircase is intended to be used by the councillors on ordinary occasions, but not by the public or the general staff of officials. The business stairs are each arranged in single flights from floor to floor, and in connexion with the eastern staircase is a public lift for use if required. The introduction of the ante-room between the reception-room and the dining-room is not a necessity of the plan, but it is offered as a great improvement to the effect of the rooms. Large double folding-doors could be arranged to divide off the rooms when required, and otherwise to fold back against the blank portion of the walls on either side of the ante-room.

A private entry and staircase for the Mayor is provided, with a special entrance to the Council Chamber. The ante-room to the Council Chamber can be used *en suite* with the other state rooms if required. . . .

The side towards the churchyard is obviously the quiet quarter for Council Chamber and committee-rooms, and the small committee-rooms are arranged in this quarter on the mezzanine, councillors having direct communication with this floor by doors from the landing of main staircase. The Council Chamber,



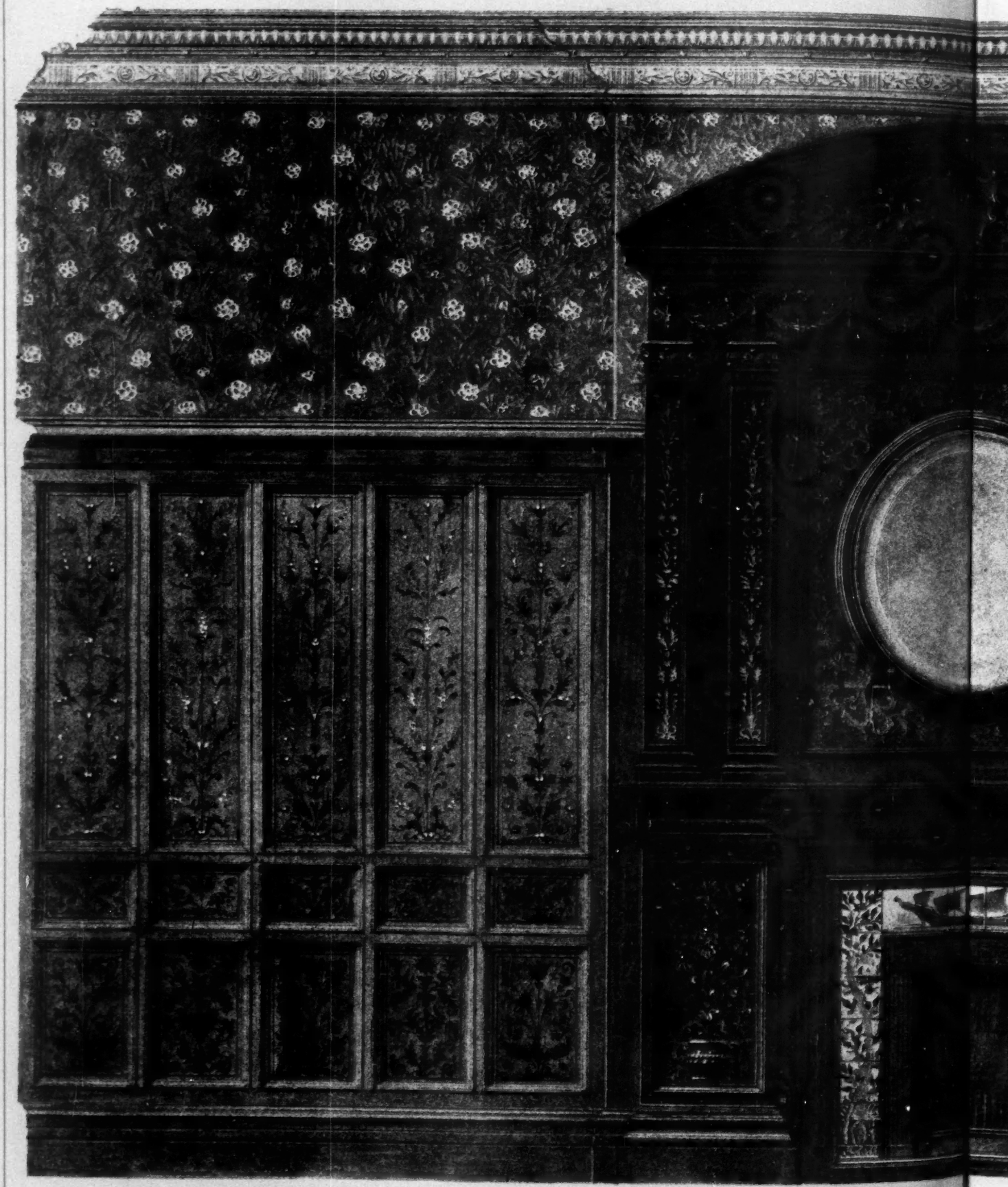




Plans of Competition Design for Sheffield Municipal Buildings. By Mr. J. Slater, F.R.I.B.A., and Mr. H. H. Statham, F.R.I.B.A.

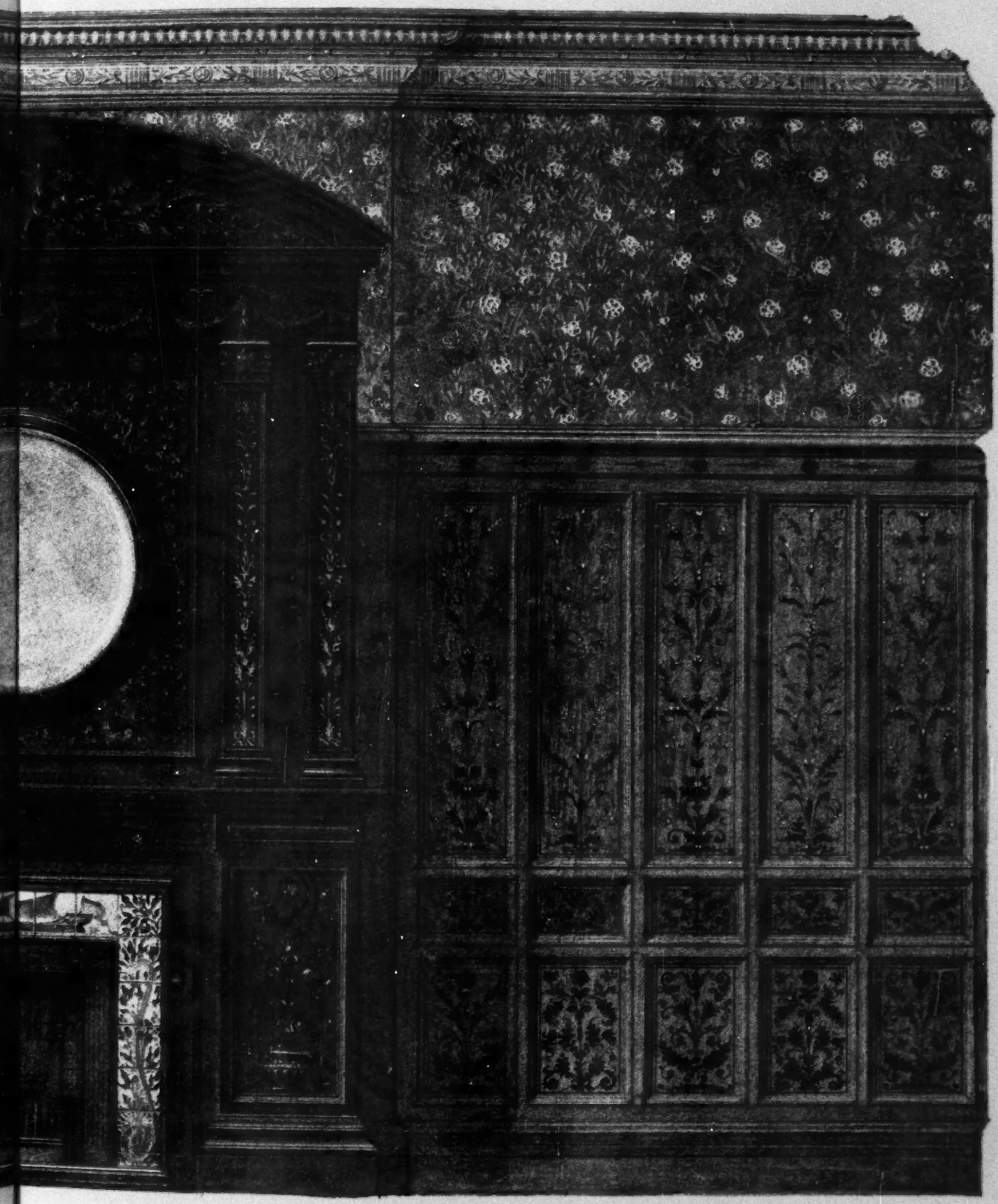
CHURCH OF THE SACRED HEART, WIMBLEDON.— Mr. F. A. Walters, A.R.I.B.A., Architect.

No. 1785 Royal Academy Exhibition.



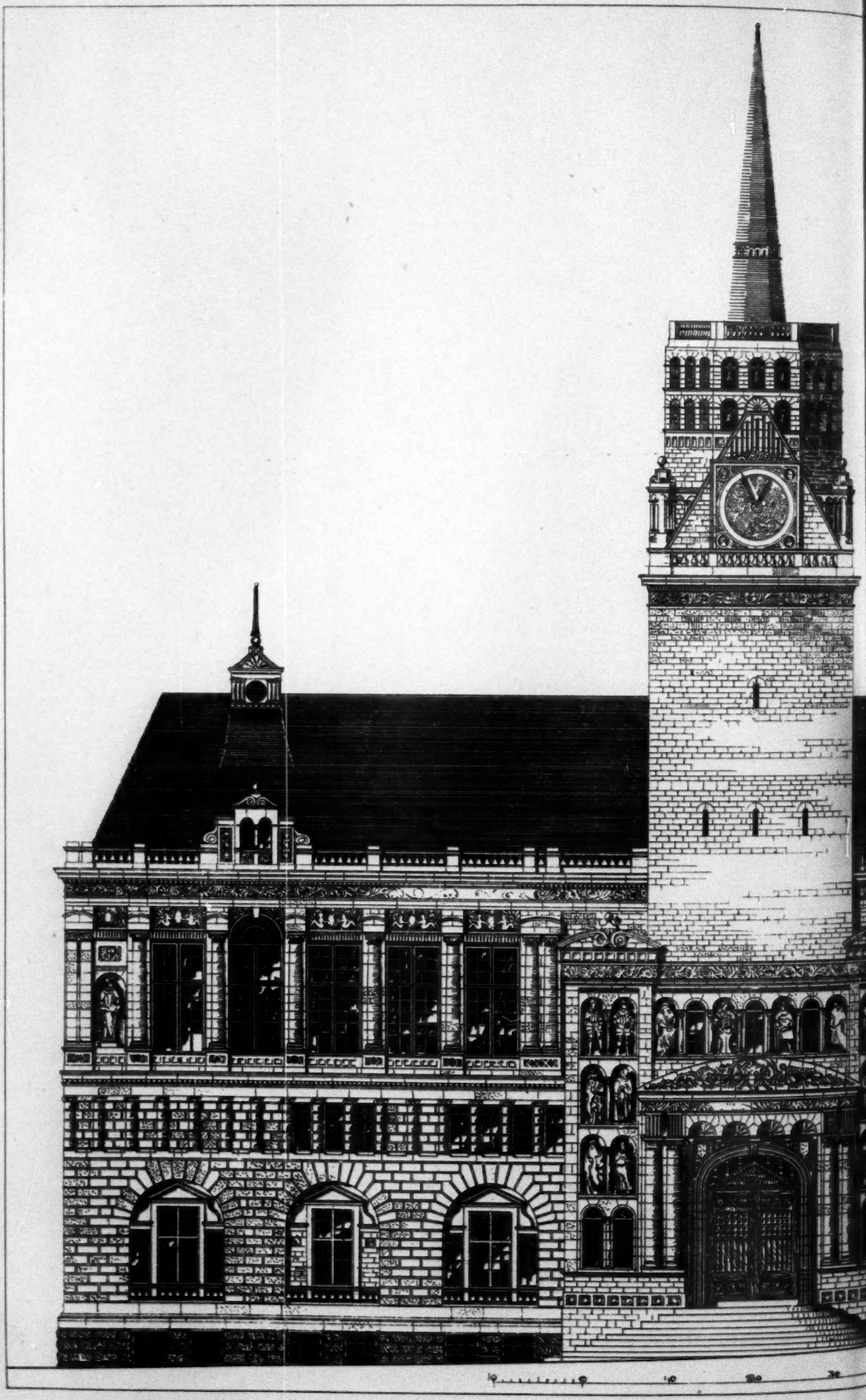
BEDROOM IN A COUNTRY HOUSE.—PROFE

No. 1744 Royal Academy Exhibition.



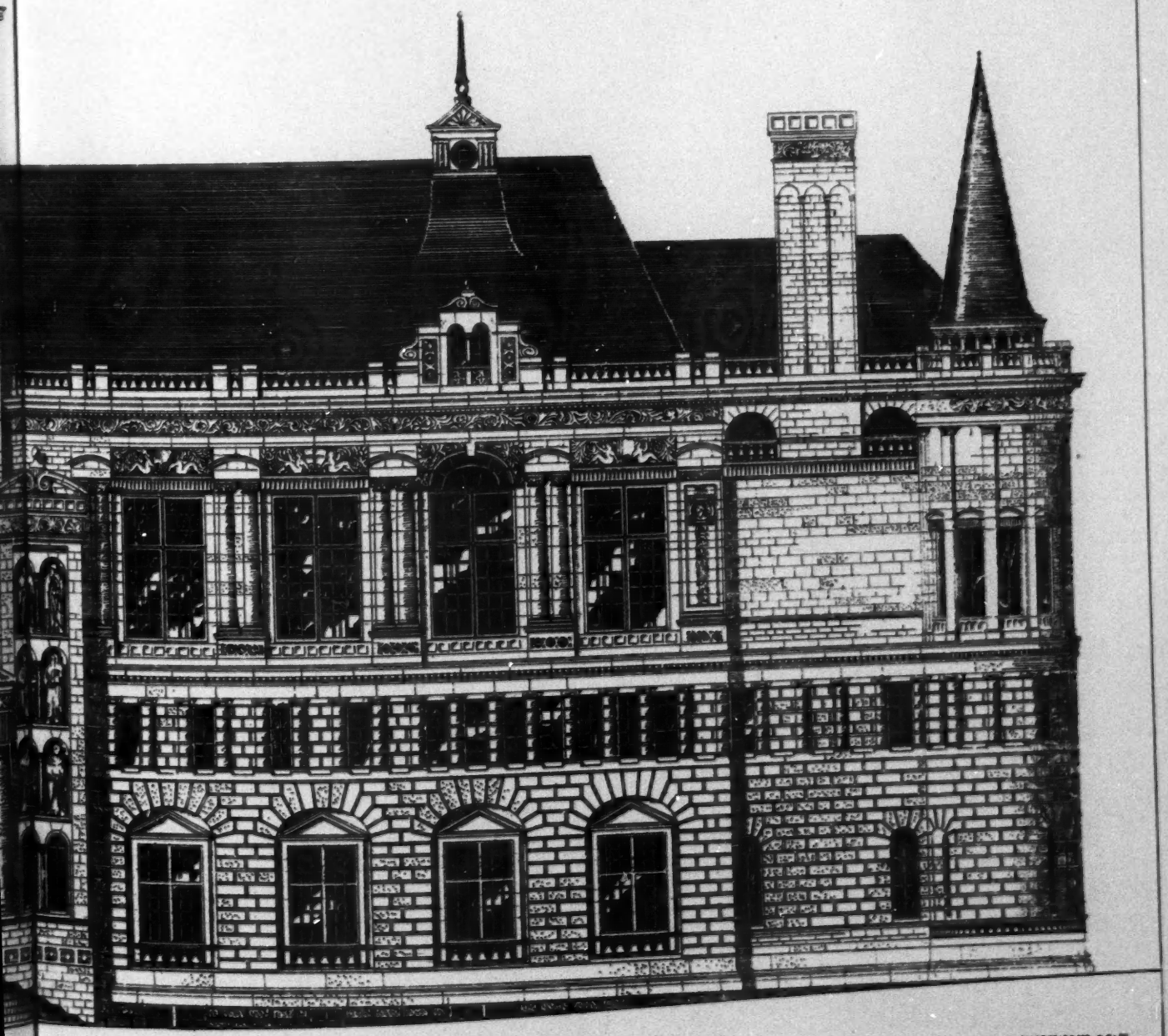
THE PHOTO-TYPHOGLYPTIC CO. (LTD.) 39 MARTINS LANE, CANNON ST., LONDON E.C.

E.—Professor Aitchison, A.R.A., Architect.



No. 1720 Royal Academy Exhibition.

SHEFFIELD MVNICIPAL BVILDINGS COMPETITION ELEVATION OF DESIGN SVBMITTED BY MESSRS. J. SLATER AND W. H. STATHAM

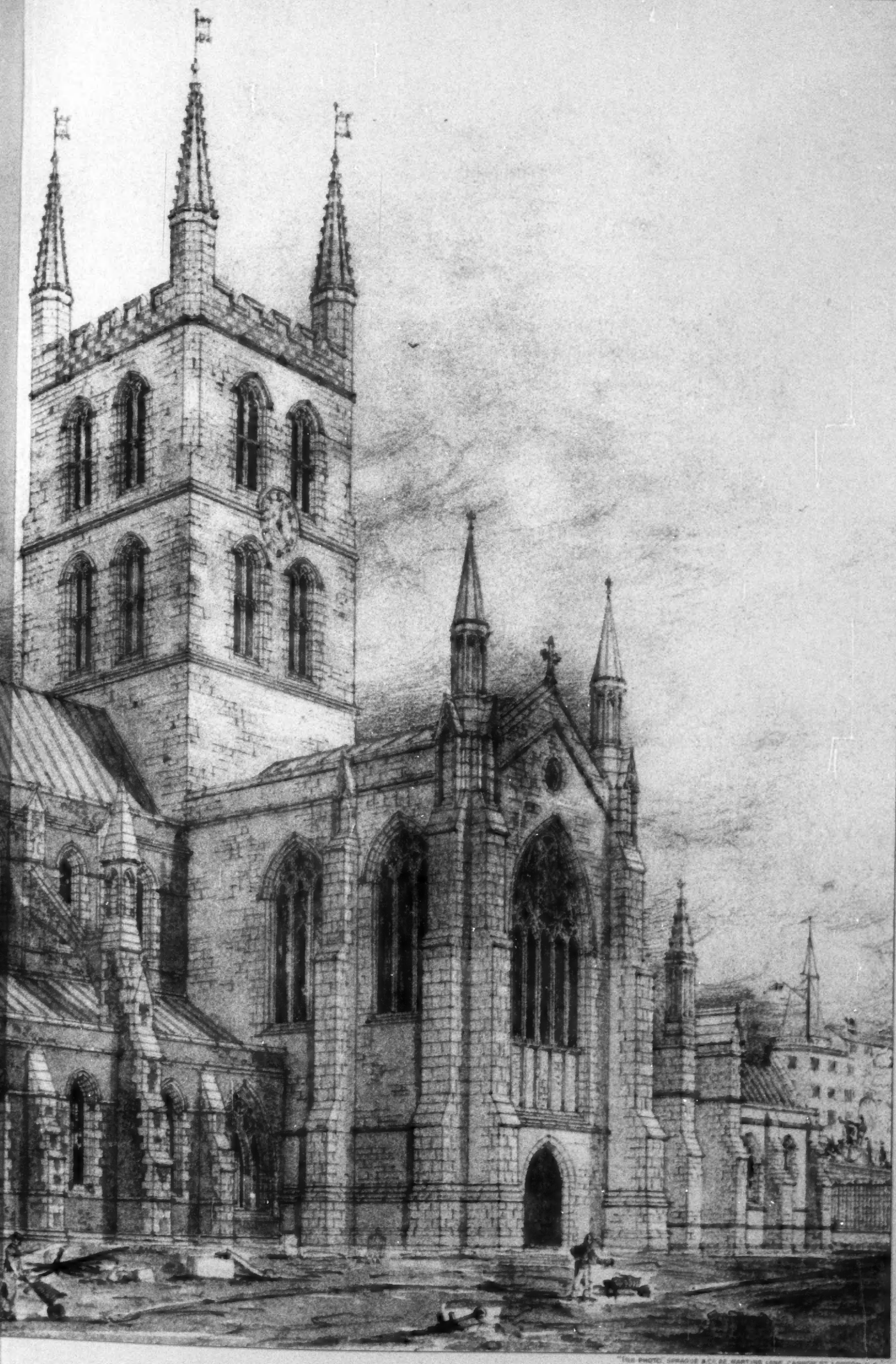


W. H. STATHAM DEL.

PHOTO-LITHO. SPRAGUE & Co. 23 MARTINS LANE CANNON ST. LONDON, E.C.

SAINT SAVIOURS CHURCH
SOUTHWARK
NAVE RESTORED
ARTHUR W. BLOMFIELD A.R.A. Archt.

No. 1730 Royal Academy Exhibition.



"THE PHOTO." SPRAGUE & CO., 62, MARTINS LANE, CANNON ST., LONDON, E.C.

main committee-rooms, and Town Clerk's department are all on the first floor.

The ladies' and gentlemen's cloak-rooms for receptions (the latter available at other times for the staff), are placed on the ground-floor; it would be a complete mistake to place them (as required) on the first-floor, as it would destroy the whole function and meaning of a state staircase to have a motley company in overcoats and wrappers draggling up it; in such a case it would be absurd to have a state staircase at all. A special lavatory and cloak-room for councillors is provided on the first-floor.

The public lavatories are at the east end, sunk nearly below the ground, with prism lights from the pavement. In case of extension of the building, provision for lighting these otherwise, from an area and arcade, is made and indicated by dotted lines on sub-basement plan.

Future extension is provided for at the east end by the addition of a semicircular block, as shown by dotted lines, with the existing main corridors carried round it and meeting. In this way, the future addition, instead of being any excrescence, would form a new and effective architectural feature to the building, without in any way interfering with the original design.

The design of the Pinstone-street front speaks for itself; it need only be remarked that the idea is to place an enriched story or 'piano nobile' on a lofty and very solidly-treated basement. A large screen façade, with niches for statues, gives dignity to the entrance, and forms the exterior expression of the entrance-hall. Great importance is now attached to the combination of sculpture with architecture, and these niches might be filled with historic portrait statues of eminent citizens of Sheffield in past times.

The upper portion of the tower is designed for a carillon with forty-eight bells, hung visibly in open arches, and struck by hammers from within; rivalling in effect the celebrated carillon of Louvain.

No *porte-cochère* is shown: a *porte-cochère* is always more or less an architectural excrescence, and experience in similar cases has shown that there is no difficulty in providing for the comfort of visitors at receptions by a large temporary awning.

As the Corporation have decided to adopt stone, we are convinced that the only stone which it would be right to use for a building of this importance is a close-grained sandstone containing as little foreign matter as possible. We believe that the best stone in the United Kingdom for use in Sheffield would be the Craigleith stone obtained from the neighbourhood of Edinburgh. We are aware that the cost of this stone is more than that of many of the Yorkshire sandstones, but it would be well worth the while of the Corporation to decide upon this extra cost, as the durability of Craigleith is far in advance of any other. If this stone should be considered too costly, we should advise the selection of one of the best stones of what is known as the Lower Keuper formation, such as Hollington. The backing of the walls would be of hard stock bricks, and all the open areas in the interior of the building would be faced with white glazed bricks. The roofs would be covered with blue and green slates intermixed.

All the strong-rooms would be lined with salt-glazed gault fire-bricks. The floors would be all fire-proof, and we should recommend what is known as Lindsay's steel decking for the purpose.

The internal columns of the entrance-hall, vestibule, and staircase would be of various kinds of marble, &c. We should use alabaster for the staircase balustrade, and also as panels in the arcade at top of stairs. The internal finishings of the suite of reception-rooms would be of American walnut.

Although in the United States steam-heating is largely adopted, yet there are many drawbacks and risks attendant on it, and we are of opinion that on the whole the best plan to adopt would be hot-water-heating. In the sub-basement would be a large boiler and furnace sufficient to heat the water for the whole of the building, and from it would be led a series of flow and return pipes which would in some cases be merely covered by an iron grating, and in others connected with coils of pipes, as might be most expedient. We should have separate flow and return pipes for heating the hot water which would be required in the various lavatories. In all cases fresh air would be introduced into the rooms by Tobin tubes, and in those rooms which are not of excessive size the foul air would be extracted by flues 9 in. square formed on the walls and ascending to the roof. In the large rooms, such as the Rates Office, the Water Office, the Town Clerk's general office, the Council Chamber and the suite of reception-rooms, this would not be sufficient, and we should propose to carry flues from these rooms to a small chamber in the roof, where would be placed an exhaust fan worked by a small electric motor. By these means all the rooms would be effectively ventilated.

We should certainly recommend that the whole building be lit by electricity. We calculate that about 1,100 incandescent lamps of sixteen-candle power would be required for the whole building, although probably not more than 750 would ever be in use at the same time. These would necessitate two gas-engines of forty-horse power indicated, and to guard against contingencies it would be desirable to have three dynamo machines, which would all be placed in the sub-basement, as shown on plan. We should not, however, depend upon dynamos alone, as we should advise that storage cells forming an accumulator-battery sufficient to supply the whole building for one day be fixed in the store-room appropriated to them, and that the whole of the current from the dynamos be conducted through the accumulator. This would prevent any fluctuations in the beat of the gas-engine being perceived in the lamps. We should place two glow-lamps in each strong-room, arranged so that the opening of the door turns the light on and closing it again turns it off. This will be found practically of the greatest possible convenience. The small electric motor previously mentioned would be driven from the accumulator."

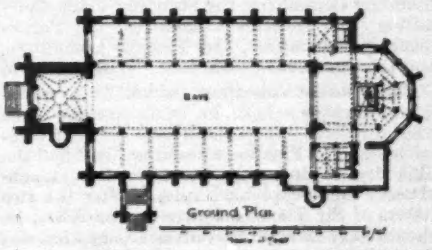
DECORATION OF BEDROOM FOR A COUNTRY HOUSE.

THIS is a reproduction of a design by Professor Aitchison, which is exhibited at the Royal Academy, and is referred to in our notes on Royal Academy architecture in another column.

The room is panelled in sequoia wood, which is beautiful in its colour and markings, but difficult to carve, as it requires very sharp tools, and rapidly takes the edge off them. In consequence of this, the chimney-piece was executed in pale mahogany. The whole is in a low tone, but a bit of brilliant colour has been got with Mr. De Morgan's tiles. The carving was done by the School of Wood-Carving, at the Guilds Institute, Princes-gate.

CHURCH OF THE SACRED HEART, WIMBLEDON.

THIS church will, when completed, consist of apsidal chancel, with ambulatory round same, side chapels (with organ-chamber over that on south side), nave, aisles, western tower, and south porch. The total internal length will be 160 ft., and the width 65 ft., the height of the nave being 60 ft. from floor to top of under-side of



panelled ceiling. The style is of the "Flowing Decorated" period of English architecture, and externally the walls are faced with knapped flints, with dressings of Ancaster stone, Beer stone being used internally. The nave is divided into eight bays, separated internally by clustered columns and moulded arches, with a richly-sculptured and canopied niche projecting from the wall at every alternate bay. The clearstory is filled with a series of lofty three-light windows of varied design, between which are wall-shafts with foliated caps supporting the arched principals of the roof, over which is a panelled ceiling with carved and decorated wood bosses at intersection of ribs. The wall-shafts are supported between the arches by angels bearing instruments of the Passion. The rood and beam filling the upper part of the chancel arch are richly sculptured and decorated in gold and colour, the chief figures being studied from those in the Collegiate Church at Louvain, while the flanking cherubim on wheels are similar to those formerly in Westminster Abbey, and as described in the "Kites of Durham." The lower arch across the chancel stopping the vaulting of apse is surmounted by canopied niches containing figures of Our Lord in Glory, SS. Peter and Paul, and attendant angels. The high altar will stand on the chord of the apse under a baldacchino supported by clustered columns, and crowned by a rich and lofty canopy. Mr. Fredk. A. Walters, F.S.A., is the architect of the church, and the contractors for the nave and other portions built were Messrs. Goddard & Sons, of Farnham, the carving being all by the late Mr. James McCulloch.

THE INSTITUTE OF BUILDERS.

THE annual dinner of this Institute was held at the Savoy Hotel on Thursday, the 1st inst., Mr. T. F. Rider, F.R.G.S., President, in the chair. Among those present were the Deputy-Chairman of the London County Council, the Master of the Carpenters' Company, Col. Bird, Dr. F. Elgar, Messrs. Eedle, Franklin, E. S. Henshaw, Maton, Preston, and Rickman.

After the toast of "The Queen," and that of "The Prince and Princess of Wales and the other members of the Royal Family," the President proposed "The Navy, Army, and Auxiliary Forces," to which Col. Bird responded.

Mr. H. T. Ashby proposed "The London County Council," to which Mr. A. H. Haggis, Deputy-Chairman of the Council, replied.

The toast of the "Architects and Surveyors" having been proposed by Mr. H. H. Bartlett, was responded to by Mr. Banister Fletcher and Mr. Franklin.

In proposing "The Institute of Builders," the President said that although only incorporated in 1884, the Institute had been in existence as the "Builders' Society" for fifty-six years, and was greatly extending its usefulness.

Mr. J. Howard Colls proposed "The President," to which Mr. Rider responded.

The toast of "The Visitors," proposed by the President and replied to by Mr. Stanton Wm. Preston, was the concluding item on the list.

THE ART-UNION OF LONDON:

ANNUAL MEETING AND PRIZE DISTRIBUTION.

THE annual meeting of the Art-Union of London was held on Tuesday last in the Adelphi Theatre, the President, the Earl of Derby, in the chair.

The Annual Report of the Council, read by Mr. J. A. Hallett, contained the following paragraphs:—

"For the year now closing, the Council have to report the amount of subscription to be 5,919*l.* 18*s.*

The following is a brief summary of the receipts and expenditure; a detailed account will, as usual, be printed in the Report:—

Amount of subscriptions			£5,919 18 0
Allotted for prizes	£1,198	0 0	
Set apart towards providing works of art for accumulated payments.....	301	18 0	
For print of the year, exhibition, report, and reserve..	1,781	7 8	
			3,341 5 3
Agents' commission and charges, advertisements, printing, postage, rent, &c..			2,578 12 9
			£5,919 18 0

To the local honorary secretaries and agents in al parts of the world we have, as usual, to express the thanks of the Art Union.

The amount to be expended on prizes will be thus allotted:—One work at 100*l.*, one at 50*l.*, one at 40*l.*, four works at 30*l.* each, four at 25*l.* each, six at 20*l.* each, ten at 15*l.* each, twelve at 10*l.* each making a total of 800*l.*, in addition to ten Bellerophon *repoussé* bronze vases and thirty silver 'Stothard' medals, making, with the prizes given to unsuccessful members, 270 prizes.

In October last the Council was deprived by death of the valuable services of Mr. Troughton, who had been Honorary Secretary since the death of Mr. Pocock. Mr. Troughton was one of the founders of the Art-Union in 1836, and was a most diligent attendant at the meetings of Council. His practical knowledge of art, and excellent taste, rendered his opinion highly valuable in the selection of works for prizeholders requiring assistance, and in the arrangement of the exhibitions the want of his presence will be keenly felt. His genial and urbane character justly endeared him to his colleagues. Mr. Troughton was a writer of no mean order, his tragedy of 'Nina Sforza' was produced at the Haymarket Theatre during Mr. Macready's management.

In February last died Mr. H. R. Haines, who had been for several years a diligent and useful member of the Council. Mr. Haines was possessed of great taste and much knowledge of art, and his colleagues will deeply feel the loss of his judicious and practical suggestions.

At Kensington, on the 16th March, 1889, passed away Mr. Samuel Carter Hall, who for many years occupied a very prominent position in art literature. He was born in 1800. A casual remark of Charles Landseer, at a public dinner, that there was no periodical publication to represent art led to the foundation of the *Art Journal*, or, as it was first called, the *Art Union*, from the initiative of this society. It is the lot of but few periodicals to prolong their existence into a second half-century, and it is an almost unique circumstance for the conduct of a magazine to have had but a single change during that period. It was on February 13, 1839, that the first number of this journal appeared, and for more than half a century the veteran originator had the pleasure of seeing his offspring grow, mature, and prosper in its career of usefulness. The number printed of the first edition was 850—since then as much as 70,000*l.* has been received from its sale in a single year. At the time when the journal first appeared there was no patronage for British art—collectors would look only at old masters, which were consequently manufactured and imported for them, at a rate which was certified by the customs at 10,000*l.* a year. To Mr. Hall was due the bursting of this bubble, and he had to assert the truth of his strong language concerning this traffic in the law

courts. In 1843 Mr. Hall visited every important manufacturing centre in Great Britain, only to find that nowhere was there any persistent or consistent effort being made to weld together arts and manufactures. Everywhere there was an entire dependence for patterns and designs on borrowings, purchases, or thefts, from France and other countries, and a regular trade in foreign patterns brought much gain to those concerned in it. Mr. Hall retired from the editorship of the *Art Journal* in 1880."

After chronicling the death of Mr. T. O. Barlow, R.A., Mr. Fred. Tayler, and Mr. J. R. Herbert, R.A., the Report went on to give a summary of the proceedings of the Edinburgh Congress of the National Association for the Advancement of Art. One paragraph which occurred in the summary or review referred to was as follows:—

"It is remarkable that no one was found at the meeting to say a word for the efforts which the Art-Union has been making for fifty years and more to excite in the minds of the people not only of the United Kingdom, but wherever the English-speaking race is to be found, an interest and an appreciation of the refining and ennobling effects of fine-art works by the dissemination of thousands of reproductions by choice engraving, of the finest work of British artists, as well as copies of both antique and modern specimens of sculpture. There is abundant evidence to prove that these exertions have not been put forward in vain. The mere fact of the continued improvement in the quality of works selected by prizeholders, year after year, proves that the influence of the Art-Union's teaching has been very considerable."

Following this came a review of the Paris Exhibition, and the Council then make the following remarks as to their programme for the ensuing year:—

"For the ensuing year the Council have secured the services of four well-known Fellows of the Royal Society of Painter-Etchers to produce etchings of the following works in the National Gallery:—

'Landscape' by Thos. Barker, No. 1,069, etched by E. Barclay.

'Entrance to Pisa from Leghorn' by Sir A. Callcott, No. 346 etched by C. O. Murray.

'A House at Hampstead' by John Constable, No. 1,246, etched by H. R. Robertson.

'The Windmill' by John Crome, No. 926, etched by Percy Thomas.

The choice of these four artists has been carefully considered. They represent one of the most remarkable movements in the history of English art.

The landscape painting of Europe had been so completely conventional that reference to nature was not only seldom made by the painter, but was resented as an impertinence by the art critic. Hence the neglect under which Wilson, Gainsborough (as a landscape painter), Crome, Constable, and Müller all suffered. They lived before their age.

Constable said of his work:—'My art flatters nobody by imitation, it courts nobody by smoothness, it tickles nobody by petiteness, it is without fal-de-lal or fiddle-de-dee—how then can I hope to be popular?' Nevertheless no English painter has had a more wide-reaching power as a teacher, and his picture of 'The Haywain,' sent in 1824 to Paris, for which he received the Gold Medal, is acknowledged by the French critics themselves to have had a vast influence on French art.

There is no doubt that the school of Troyon was initiated by the admiration of these fine works. He brought about the frank acceptance and induced an admiration for nature as taking the place of the ordinary conventional "composition" which prevailed so exclusively before his time and the time of his contemporaries.

The group of Englishmen (whose work we shall put before our subscribers next year) had the gift to see nature again after centuries of blindness.

So with Gainsborough and so with John Crome, who with Constable were all natives of Norfolk and Suffolk, a district which at the end of the last century was little visited, and retained a rustic wildness of aspect that has since been improved off the land,—wide wandering roads, wayside pools, large oaks and other timber. These characters sank into the minds of the gifted men who were so numerous in the last century, and stimulated Gainsborough to a most artless recording of the county he lived in. The same may be said for John Crome, who by his faithful rendering of the canals, oaks, and heaths of his native county will live as a great painter as long as his canvas lasts.

In all, the truly English impression of nature is seen, large, without meretricious effect, with a due respect for what has been called the 'passion of nature' in her stormy, showery, and breezy moods, without excess of minute detail, yet all that is essential is there.

Sir A. Callcott took the middle phase and was a successful and even fashionable painter. His Italian sketches, made after he was fifty years of age, show a masculine directness that is very valuable, and characteristic of his age and its way of regarding nature.

Of Thomas Barker, of Bath, too, we may say he worked like a man: his contrasts of colour as of form and human expression are full of force, and all in the truly simple English taste, strong without theatrical exaggeration. These men were the masters and fathers of our English Landscape art, and deserve our truest and frankest acknowledgments for their work.

Apropos of English art a very interesting address was given by Mr. Orrock at the Society of Arts on March 11 last, on the claims of the British school of painting to a thorough representation in the National Gallery. . . .

When the attention of the officials of the National Gallery is called to the desirability of securing at a sale some fine rare example of one of our own masters, the reply always is, 'There are no funds.' Out of available funds amounting to some 45,000*l.*, about 3,000*l.* was spent on English pictures. We want fine specimens of English art for the benefit of painters, students, and all lovers of national art.

It is believed that several large sums and a number of choice works in water-colour have been already promised towards the formation of a real Gallery of English Art; but it is not likely that such an arrangement will be carried out if the works presented are to be hidden away in badly-lighted underground rooms. Let there be a properly-lighted and proportioned gallery provided, open to the calm, clear silver light which is required to allow their infinite beauty and delicate treatment to be studied and felt, and thus we shall encourage others to add to the collection, and convince the nation that we indeed have a school."

Lord Derby, in moving the adoption of the report, said it was not his wish or his duty to follow the various points raised in it, but he was compelled to admit his appreciation of its spirit. He thought he could venture to say, as one of the Trustees of the National Portrait Gallery, that the Trustees would be glad to receive portraits of eminent artists, though he did not think it would be advisable to hang them in a distinct group or class. He was sorry to say that there had been a very considerable falling off in the list of subscribers to the Art Union, who in 1880 numbered 15,000, but to-day only 6,000. It could not be said that this was owing to a decline in the artistic taste, for the demand for artistic work was greater now than it had ever been before. Probably the cause would be found to rest partly with the commercial depression which existed of late years. If they had suffered in bad times, it was only reasonable to hope that with the revival of trade they would benefit. Another and perhaps permanent cause arose from the Art Union's own success, which had brought imitators into the field. He did not despair of the Art Union's prospects, and urged the executive not to lose heart, but to energetically face the increased competition. The report was unanimously adopted.

Several votes of thanks having been passed, the drawing for prizes took place, with the result that the principal prize of 100*l.* was drawn by Mr. H. R. Ferry, of Granville Park, Blackheath.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held in the Council Chamber at the "County Hall,"* Spring-gardens, on Tuesday last, Lord Rosebery in the chair.

The Chairman resumed and concluded his review of the committee-work of the Council for the past year, dealing with the work of the Standing Committee, the Standing Joint Committee, the Theatres Committee, the Parliamentary Committee, the Finance Committee, and the Contracts Committee. With regard to

The Finance Committee, which by its statutory obligations had, he said, exercised the most invidious functions of any of their committees. The Finance Committee had had the difficulty of imposing the rate—that much-abused, much-explained rate. After the two letters of Sir Thomas Farrer in the *Times*, he should have thought that all misconception was impossible, but none were so blind as those who would not see, and it might be worth while for one moment to touch upon that subject. Their critics said: "The Metropolitan Board rate was 10·10d., and your precept is 13·25d., therefore your rate is 3¼d. more than the Metropolitan Board rate." That was perfectly true, and if the work of the School Board were added to the work of the County Council their rate would be 15d. more than the rate of the Metropolitan Board of Works, and if the care of the British Museum were added to their charges their rates would be again considerably enhanced; and if they had to pay for the Brigade of Guards and their maintenance their rates again would be considerably enhanced. That was the whole question. The rate they were raising was not the rate of the Metropolitan Board; it was a great many other rates; and of course those who desired to discredit the London County Council deliberately ignored that fact and made capital out of their supposed ignorance. They had a good many other rates the collection of which was not voluntary, but was imposed upon them by Parliament. As it happened, their rate for Metropolitan Board purposes last year was smaller than that of the Metropolitan Board itself. It was 10·06d., as against 10·10d. But they were a totally different body to the Metropolitan Board of Works; they were a municipality, not a Commission of Works and Sewers. The Government wished to create a great municipality for London, and, having created that municipality, it had handed over to it the powers of the Metropolitan Board of Works and a great many other powers besides. It handed also a certain income over to them with which to discharge those new duties. That income was totally inadequate, and it was in respect to that inadequacy that the rate was raised in the present year. He read out a list of the new duties imposed upon them by Act of Parliament in addition to those imposed on the Metropolitan Board of Works, each of which involved expenditure to the County Council—payments to Guardians towards remuneration of teachers in Poor Law schools, to public vaccinators, to local authorities for Medical Officers of Health, to Poor Law Guardians for registrars of births and deaths, to Guardians for Poor Law medical expenses, to Guardians and others for pauper lunatics, to Guardians of 4d. a head a day,—that alone was an item of £326,000 a year,—and to Croydon for union officers. Besides these payments there were old county liabilities,—the interest on the debt, pensions of officers of prisons, lunatic asylums, and Feltham School, and the proportion of the liability of 2,400*l.* a year contributed by the old counties of Surrey and Middlesex towards the cost of metropolitan Thames bridges. Then under the head of judicial work—criminal prosecutions, Central Criminal Court expenses, judicial salaries, and Sessions Houses maintenance. Then provision of new lunatic asylums, coroners' salaries and disbursements, industrial schools, weights and measures, main roads maintenance, county bridges (other than Thames) maintenance, registration of voters and revising barristers, Medical Officers of Health, expenses of burial of human bodies cast on shore (that was a small item), licensing for music and dancing, licensing slaughterhouses and cow-houses, county rate—preparation of basis for rate in Penge, and compiling the valuation lists for rest of county, rabies—that was now 4,260*l.*—a new item of expense, and electric lighting. Those items cost the Council altogether 1,206,742*l.*, towards which the Government gave 823,384*l.*, and there were small receipts amounting to 29,771*l.*, so that to set off against their 1,206,742*l.* of additional expenditure they had 853,155*l.* of additional income, which left 354,000*l.* a year to be met out of the rates,—that was, a rate of nearly 2¾d. In the Report of the Finance Committee issued that day there was a very instructive table showing how in each parish or union of London the rate was diminished by the contributions which the Council made. This question of rates impaired their popularity, it crippled their usefulness, and it put a stop to metropolitan improvement. Their credit was in no respect diminished. One great feature of the work of the Finance Committee of this year had been the raising of its first loan. The Metropolitan Board created first a 3½ per cent. stock in 1869. This continued till 1880. Then one at 3 per cent., which continued till 1887. The average price of issue in that year was over par. A body creating stock does not get the full value of the security when the rate of interest commands more than the par price at which the security will be ultimately redeemed. The choice lay between 2¾ and 2½ per cent. The present Government Consols were 2¾, falling in 1903 to 2¼ per cent. The average price produced to the Council on its 2½ per cent. stock was £91. 12*s.*; the net produce 91*l.* 0*s.* 10*d.* The rate of interest on the sterling is 2*l.* 14*s.* 11*d.*, and, adding bank management and Government duty, 2*l.* 17*s.* 5*d.*, exclusive of cost of redemption at par. The average rate of interest on the sterling of the three issues of stock (3 per cent.) previously to that of 1889 was:—1885, 3*l.* 4*s.* 1*d.*; 1886, 3*l.* 2*s.* 9½*d.*; 1887, 3*l.* 2*s.* 10*d.*; as compared with 1889, 2*l.* 17*s.* 5*d.* Their gratitude was greatly due to Lord Lingen.

The Contracts Committee.—The Chairman then referred to the work of the Contracts Committee. They had to examine the allegation that sub-contracting was going on in their works, and sub-contracting meant sweating and inferior work. They had not reported, but the Council had done a good deal in the direction of what the Contracts Committee was appointed to promote.

General Work of the Council.—In conclusion, the Chairman made some remarks on questions of policy or principle affecting the work of the Council. The present Council, he said, had lived fourteen months, and they had only eighteen months more to live. In that time it seemed to him that they ought to complete

* So the premises in Spring-gardens are designated on the summonses convening the meeting.

their organisation, as far as it was possible, and they ought to lay down a definite scheme of policy to guide them. They could not fully complete their organisation, because that was a matter of growth and development, but he thought from their experience they could evolve a rational and elastic plan which would be of use to themselves and a guide to their successors. Their present position was in some degree anomalous. They were an administrative body without any executive. They worked through some eighteen committees. It was quite clear that under these circumstances their work must always be liable to be faulty and inconsistent. Suppose the House of Commons were to administer in the same way. Suppose that instead of having sixteen or seventeen ministers at the head of departments they had sixteen or seventeen committees administering the War Office, the Admiralty, and so forth, and each of them made a weekly report to the House of Commons and received the House of Commons' directions as to the work it was to pursue, he ventured to say that such a scene of administrative chaos could not have been witnessed in the course of human history. He could perceive the evil, but he did not perceive the remedy. It was quite clear that 137 was too large a number for an executive body, while, on the other hand, he did not quite see what was to assist that body in performing its executive functions. He ventured to think that the Council would not do badly if it applied itself through some Committee or otherwise to see if they could not find a remedy for that state of things. With regard to the

Relations of the Council with the Corporation of London, he said that this was a matter of some complexity, and he would beseech them, in what he was going to say, to believe that he spoke, not as member for the City, but as Chairman of the Council. The position of the City was peculiar; it was not natural, it had no elements of durability—in its present shape it had no elements of durability. It was something like the scheme that was planned for Papal Rome at the Second Empire—that the Pope was to occupy what was called the Leonine City and live in perfect harmony with the rest of the metropolis, which was to be given up to the kingdom of Italy; and so close was the parallel, strangely enough, that when the Emperor Napoleon III. was planning something of this sort, he sent over to London to try and find out if he could not obtain some information about the exceptional privileges of the City of London, in relation to the rest of the Metropolis, which would give him some guidance as to the relations which he might hope to establish between the Leonine City and the rest of Rome; and the result that he obtained was summed up comprehensively by his own Minister in the words that it was not possible for St. Peter to follow St. Paul in this matter. As they were aware, in some respects the Metropolis was one already; but the Corporation and the privileges of the City of London were maintained intact. Their duty, it seemed to him, was to respect that arrangement in all courtesy and good faith. The condition of things, as he had said, must in its nature be provisional. In time, in the fulness of time, the Metropolis would be one,—one in all respects. It would not be easy to reconcile and to blend all the various elements which would be required in order to solve that great problem of mingling the pomp and the splendour of the City with the simple democracy of that body—to sew the purple of the City and the linen of the County Council together; but that was not their work. It might be it was the work of statesmen and of Parliament, and no action of the Council, as far as he knew, would either further or facilitate that work. He hoped it would be accomplished, when it was accomplished, with the least possible friction and the least possible irritation; but in the meantime he believed that their duty in the matter was perfectly clear, that their relations with the City should be marked by dignity and friendliness and fair dealing; not encroaching on the privileges of the City nor allowing the City to encroach on theirs; not allowing the interests of the community of London at large to suffer by any neglect on their part either in action or in representation, but not unnecessarily interfering with that ancient body where they had no direct interest of the community to serve. Now he ended the record that he had to lay before them. It was a review of hard and honest work. They had had to learn their business and to do it. Of the quality of that work the results must be the test, but of the quantity he could testify himself. He had watched them doing it through the short days of winter and the long summer afternoons, sometimes baffled and depressed owing to the internal inconsistency of the evils to be overcome and the difficulty of overcoming them. What had sustained them, he believed, in this work had been neither fees, nor fame, nor praise; it had been the pure impulse of a clear duty and a high hope and a generous ideal. He hoped that they would always cherish that spirit among them, for without it their work would degenerate into a revolting round of oppressive detail; without it they might easily dwindle into mean corruption and to petty intrigue; and without it the Council itself could never realise that high destiny which, as the greatest municipality in the world, worked by the greatest race in the world in the greatest city of the world, if wisely guided and well served, in the fulness of time it could not fail to obtain.

The Vice-Chairman (Sir John Lubbock) moved that the Council should request the Chairman to allow his address to be printed and circulated.

The Deputy-Chairman (Mr. Haggis) seconded the motion, which was unanimously adopted.

A Model Lodging-House to be built in Drury-lane.—The Council then resumed the adjourned debate on the report of the Housing of the Working Classes Committee, which recommended that the Council, subject to an estimate to be approved by the Finance Committee, should undertake the erection of a model lodging-house on the model of those erected and controlled by the Corporation of Glasgow, to accommodate from 300 to 350 persons, on a plot of vacant land, now in possession of the Council, in Shelton-street, Drury-lane. To this an amendment had been moved by Mr. Alderman Debenham:—

"That whilst agreeing with the general tenor of the report, the Council disagrees with the recommendations which pledge the Council to undertake the building of a common lodging-house."

After a long discussion, the amendment was negatived on a division by 87 to 24 votes, and the recommendation of the Committee was approved.

After the transaction of a great deal of other business, the Council adjourned.

ARCHITECTURAL SOCIETIES.

The Architectural Association.—The ordinary fortnightly meeting of this Association was held on the 2nd inst., at 9, Conduit-street, Mr. Leonard Stokes, President, in the chair. The "House List" of officers and committee for the ensuing session was read, and two additional nominations were taken. After a long discussion, it was resolved by a large majority, on the motion of Mr. Collard, that the votes for officers be counted the evening preceding the next meeting, and that the scrutineers be instructed to report the number of votes given to each candidate. Mr. F. R. Farrow, the senior honorary secretary, announced that the first meeting of the Sketching and Measuring Class would take place on May 17, when Rainham in Essex would be visited. Mr. Farrow also announced that a special business meeting would be held on Friday, May 9* to consider the report of the Committee on Education. Mr. E. S. Gale, honorary secretary, proposed a vote of thanks to Mr. J. M. Brydon, the architect of the new hospital, Euston-road, for kindly showing them over that building on the occasion of their visit. Mr. Keith D. Young then read a paper on "Hospitals." (See p. 337, *ante*).

Liverpool Architectural Society.—The closing address of the President of this society, Mr. T. Mellard Reade, F.R.I.B.A., &c., was delivered on Monday last. Referring to the question of the Registration of Architects, Mr. Reade said:—"The Institute at present represents, and I hope will continue to represent, the views of the majority of architects, and, so long as this representative body opposes the Bill, it is unlikely to pass into law."

Royal Institute of the Architects of Ireland.—The regular monthly Council meeting of this Institute was held at 37, Dawson-street, on Monday, May 5. Present: T. Drew, in the chair; J. R. Carroll, R. Millar, S. Symes, J. H. Pentland, W. M. Mitchell, C. Geoghegan, Albert E. Murray, hon. sec. and treas. The minutes of last meeting were read and signed. A vote of thanks was passed to Mr. A. Oliver, of London, for his kind gift to the Institute of the Designs for Royal Exchange, Dublin, dated 1768, by the late Mr. H. Newton, architect. The matter of the Dublin Corporation Improvement Bill was again under discussion, and the correspondence having been read, in which the Corporation declined to accept the amendment proposed by this Institute, the following resolution was unanimously passed:—"Having read the correspondence between the President of this Institute and the Town Clerk relative to amendment (dated February 3, 1890) proposed in clauses 40 and 61 of the Dublin Improvement Bill by this Institute, the Council has to express its disappointment and dissatisfaction that the Corporation Committee having charge of the Bill has determined to maintain those injudicious clauses as drafted. The Council can do no more than enter its protest against the rejection of its advice, founded on thorough experience of the working and wants of building legislation in Dublin, and record its opinion that the arbitrary powers sought under these clauses are unwise in the interest of future Committees of the Corporation as well as in those of the citizens."

*According to the advertisement which appears on another page, this special meeting will be held on May 16 instead of the 9th, as was announced.

OBITUARY.

Mr. John Carrick.—It is with much regret that we see announced in the Glasgow papers the death of Mr. John Carrick, the City Architect of Glasgow, which occurred on the 2nd inst. According to the *Glasgow Herald*, he was a native of Denny, in Stirlingshire. After completing his education he served an apprenticeship with the late Mr. John Bryce, architect, brother of the better-known David Bryce, of Edinburgh. Afterwards he was assistant to the late Mr. Herbertson, and he also spent a short time in England and in foreign travel acquiring further experience in his profession. Returning to Glasgow, he began business in partnership with a Mr. Brown, under the firm of Brown & Carrick, but the co-partnership lasted only a few years, Mr. Brown retiring on falling heir to the estate of Currie, near Edinburgh. Soon afterwards Mr. Carrick entered the service of the Corporation, succeeding the late Mr. Hume in the office then known as Superintendent of Streets. This was in the beginning of the year 1844.

Mr. James Nasmyth, the famous engineer, whose invention of the steam hammer will have made his name familiar wherever the English language is spoken, died on Wednesday morning last. According to the *Times*, for some six months he had been in failing health, but this arose merely from his great age, and he was accustomed to say till up to a few months ago that he had never known what it was to be ill. About a month ago he left his place at Penshurst, near Tunbridge, and came to town, where he stayed at Bailey's Hotel, Gloucester-road, Queen's-gate, and there he died. He was born in Edinburgh, on August 19, 1808, and he was consequently in his eighty-second year at the time of his death. A very interesting autobiography by Mr. Nasmyth, edited by Dr. Smiles, was published in 1883.

STAINED GLASS.

Brecon.—The officers, non-commissioned officers, and men of the 24th Regiment being desirous of erecting a memorial to their comrades who fell in the Burmese War, have commissioned Mr. Taylor, of Berners-street, to execute a stained-glass window and memorial brass bearing the name of every man who fell in action or died during the campaign, to be placed in the Priory Church, Brecon, where the memorial to their comrades who fell in the South African campaign is erected.

Burton-on-Trent.—Sir Francis Burdett, Bart., has recently presented the church of Foremark with painted glass. In the altar screen angels in adoration are introduced, with a representation of the Holy Spirit, descending in the form of a dove, above. The whole, treated in monochrome, is from the studio of Messrs. Charles Evans & Co., London.

Ingleton.—The parish church of Ingleton, Yorkshire, has lately received a stained-glass window in memory of the late Rev. Richard Denny, B.A., for twenty-nine years the faithful pastor of this parish, and the founder of its school. The window consists of two lights,

and the subject selected for illustration is "The Good Shepherd." The work has been executed by Messrs. Mayer & Co.

SEWERAGE AND DRAINAGE WORKS.

Draycott.—The sewerage works and sewage farm at Draycott, near Derby, are now completed, and the sewage was turned on the farm last week. We are informed that members of local authorities, or others interested in sanitary work, may see the farm at any time. The population whose sewage is dealt with number 1,200. The land is six acres in extent, and it has been drained, levelled, steam scuffled, and laid out with carriers. The sewers are flushed automatically every twelve hours with brook water. The engineer for the works is Mr. W. H. Radford, of Nottingham, and the contractors are Messrs. Holmes Bros., of Nottingham.

St. Helen's.—The first contract of the new intercepting sewer has been commenced, and the contractor, Mr. John Riddel, of St. Helen's, has now made good progress with the work. The sewer is over one mile and a half long, in three sizes, viz., 6 ft. circular at outfall, 6 ft. by 4 ft., and 4 ft. by 2 ft. 8 in. egg-shaped, the greatest depth of cutting being about 30 ft., and the average depth 20 ft. The whole of the work is being carried out by Mr. Geo. J. C. Broom, Assoc. M.Inst.C.E., the Borough Surveyor, engineer for the works. The estimated cost of the whole scheme is over 30,000*l.*

A PARTY-WALL CASE.

FOOT *v.* HODGSON.

This case came before the Queen's Bench Division of the High Court of Justice on Monday (Mr. Justice Mathew and Mr. Justice Grantham on the Bench). It raised a question of some general importance under the Metropolitan Building Act, 1855 (18 & 19 Vict., c. 122), as to the rights of adjoining owners of houses as to pulling down and rebuilding "party walls" between their houses, and it turned upon what is a "story" of a house. In the schedule of the Act a scale is given for the thickness of party-walls, and the wall of the "two topmost stories" is to be of a certain thickness, and the rules provide that the height of every topmost story shall be measured from the level of its floor up to half the vertical height of the rafters when the roof has no "tie" or to the "tie" when it has one. The 83rd section of the Act, subsection 7, gives a right to the building-owner to pull down any party structure that is of insufficient strength for any building intended to be built and to rebuild it of sufficient strength for the purpose upon condition of "making good all damage." The house in question, of which Hodgson was the building-owner, was in Little Trinity-lane, in the City, and had been burnt, except the party-wall between it and the adjoining house, of which Foot was building-owner. Hodgson's house, which was burnt, had at the top a floor with a slanting or shelving roof, which is now very common, and he desired to rebuild it with such a top floor as before. But the District Surveyor found that, treating this floor as a "story," and as the topmost story, it required the party-wall to be of greater strength and thickness, and Hodgson accordingly proposed to pull down the party-wall and re-erect it of the required strength. To this Foot, the building-owner of the adjoining house, objected, contending that the top floor was not a "story," and that the greater thickness of the wall was not required, whereas Hodgson insisted that it was. The contention of Foot was that, as the roof was shelving over the top room, it was not a "story," but rather a mere "cock-loft," and that as a matter of law it could not be "the topmost story," whereas Hodgson contended that it was a "topmost story," and so required the extra strength of the wall, and on a reference under the Act to a surveyor or arbitrator he so decided. But the Act gives a right of appeal to the County Court, and the adjoining building-owner so appealed, and Mr. Kerr, the Judge of the City Court, took the contrary view, and decided against the defendant,* who appealed.

Mr. Spokes appeared on his behalf in support of his appeal. Mr. Finlay, Q.C. (with Mr. Fullarton), appeared for the plaintiff, the adjoining owner, in support of the judgment of the City Court Judge.

The Court came to the conclusion, however, that that the judge was wrong, and that the defendant was right, in his contention as to the mode of measurement to be adopted, which showed the room in question to be the "topmost story," so as to require the wall to be of the greater strength and thickness; and that thus the building-owner was justified in rebuilding it of the strength required.

Judgment was given for the defendant; consequently the award of the arbitrator (Prof. T. Roger Smith) was sustained, and the appeal was allowed.

* As reported in the *Builder* for March 29 last, p. 235.

RUDE CHURCHES.

Sir,—In the notice of "Baynard's Castle" in last week's *Builder*, Mr. Macmichael is quoted as having lately asked, "Is there a village church in the United Kingdom and Ireland (*sic*) where the bare floor still exists?" I am sure there are many Catholic churches in Ireland that have clay floors. I have been in scores of them, and in many with thatched roofs: but they are fast disappearing. A few years ago I got a tile floor laid in a church near the city of Limerick, and beside a railway station, to replace a clay floor. About thirty years ago I was in walls partly built for a church, but never roofed or floored, in the mountains not far from the town of Donegal. A rude thatched open shed was formed against the inside of the east end, and a rough stone bench, which served as an altar, under it, upon which Mass was said every Sunday, the space enclosed by the walls being first cleaned and swept, as cattle and sheep had free access to it during the remainder of the week. The more careful of the large congregation knelt and sat upon stones.

In the north of the same county, and at about the same time, I saw on the natural grassy terraces sloping down to the sea in Sheephaven, near the village of Milford, what was called a "schahul," being a wall of rough masonry about 10 ft. long and 6 ft. thick for 3 ft. high, and 2½ ft. to 3 ft. thick for a further height of 6 ft. or 8 ft., leaving an offset at one side over which a thatched penthouse roof projected, and under its meagre shelter Mass was said every Sunday, the people kneeling on the fine short grass of the gentle slope to the strand and some on opposite side of the bay half a mile off. I have also been in a quarry-like hollow on the banks of the Black Water, in the county Cork, near Lismore, where the ground had subsided in a horse-shoe form into one of the caves of the locality, leaving a recess with a ledge of rock upon which Mass was said whenever it was safe, and the yeomen were away, for whom my father-in-law, when a boy, not being a suspect, watched on a neighbouring hill to give a signal to the Papists to disperse if the "yoes" were coming. M. M.

May 6, 1890.

METHOD OF TAKING ANGLES.

Sir,—I should be much obliged if you would insert this question in your next issue, or answer me otherwise:—

In taking angles with the theodolite round any figure, is it more correct to clamp the reading of an angle, say, at A, and bring this reading to bear on A from the next point B, so measure the angle at B, than to adjust the vernier at 0° each time an angle is measured? If so, why?

One in Doubt.

*** "One in Doubt" is referred to "The Student's Column," Article XV., April 9, 1887, and Articles V. and VI., July 30 and August 6, 1887, where the operation of multiplying the angle mechanically is shown to lead to numerical accuracy, as the process of dividing the total angle read by the number of repetitions obtains an average, calculated to obvinte any slight mechanical inaccuracies of subdivision in the instrument, but of course this does not overcome errors resulting from want of adjustment.

VENTILATION BY SASH WINDOWS.

Sir,—I can back up what you have said on pages 309 and 325. I have used various ways of carrying out Dr. Hinckes Bird's principle of admitting fresh air between the sashes. One plan I used for years was placing a movable piece of wood, about 2 in. thick, below the bottom sash, which, of course, raised it up 2 in., and so allowed the fresh air to come in between the sashes; when the wood was removed the lower sash could be pushed down. Another plan, which I like better, is to put a thin strip of wood, ½ in. thick, close along the top of the upper sash, either outside or inside. It is about 3 in. deep, so that when the top sash is pulled down the fresh air comes in between the sashes. This has been in use for several years at my present house, the wood slip being fixed inside for all the front windows, and outside for the back ones.

I published a drawing of the plan in 1883, and stated it was Dr. Bird's. It will be found in fig. 297 F, page 275, of "Buchan's Plumbing," in Weale's Series. W. P. Buchan.

New Stores in High Holborn.—The Great Central Hall, High Holborn, recently erected as a fire-proof structure, after the designs of Mr. R. Emerie Tylor, architect, is about to be opened as the Central Co-Operative Stores. The property extends over 21,794 feet superficial, and has three entrances in High Holborn, and three in Eagle-street. Partly freehold, and partly leased for 570*l.* annual rent, it has been valued *ad hoc* at 60,900*l.*

The Student's Column.

ELECTRICITY, MAGNETISM, AND ELECTRICITY SUPPLY.—XIX.

ALTERNATING CURRENT CIRCUIT.

The application of Ohm's law to an alternating current is not so simple as in the case of the continuous current, owing to the difficulty of assigning the right value to the electro-motive force producing the current at any particular instant.

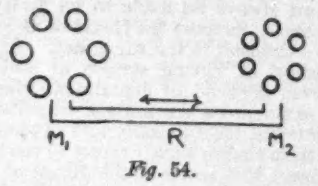


Fig. 54.

Fig. 54 represents two alternating current machines, M_1 and M_2, of which M_1 is the larger, coupled up in series through an external circuit. The resistance, through which current flows, is R, but self-induction is supposed to be entirely absent. If the machines have the same number of armature bobbins, and run at the same speed, the curves representing the E.M.F. in each will have the same period, though that for M_1 will be the taller of the two. Again, if the armatures are not at the same time in the same position, relatively to their field magnets, the phases of the curves will be different; in other words, they will not have their maximum and minimum values at the same instant.

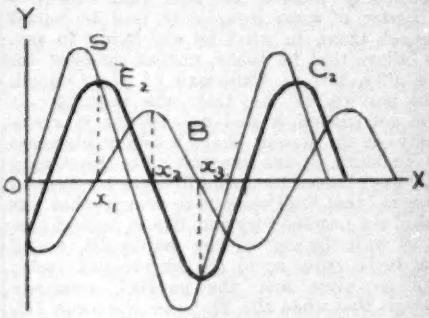


Fig. 55.

Draw (fig. 55) the curve S to represent the E.M.F. of M_1 at any instant, and B that of M_2,* then the curve E_2, representing the resultant E.M.F. acting at any instant, can be obtained by taking for its ordinates the algebraic sum of the ordinates of S and B, giving the positive sign to ordinates measured above, the negative sign to those measured below OX. We do, in fact, precisely what we should do in any other case in which we desire to use Ohm's law, viz., consider electromotive forces acting in one direction round the circuit +, in the opposite direction −, find their algebraic sum and take this sum to be the value of E in the expression $C = \frac{E}{R}$. To draw a curve representing the current flowing at any instant, the ordinates of E_2 must be divided by R; to avoid confusing the figure, R is assumed to be 1 ohm, so that the curve C_2 for the current is coincident with E_2.

The curve B can be made to assume any position, relatively to S, by shifting the armature of one of the machines backwards or forwards; in the figure, B is drawn for the special case in which it cuts OX where C_2 has its maximum or minimum value, and *vice versâ*. Now substitute for M_2 a bobbin, *b*, fig. 56, having a high co-efficient of self induction. The actual number of lines of force within *b* at any instant depends upon the value of C_2, but the E. M. F. set up in the coil depends upon the rate at which the lines are passing into or out of the coil, that is, upon the rate at which the value of C_2 is varying. When C_2 is on the point of reversing, it and the lines of force it is producing are, for the instant, steady, and the E. M. F. due to self induction is therefore zero, so that B cuts OX when C_2 or E_2 has its highest and lowest values. Again, the current is changing in value most rapidly where C_2 crosses OX, hence when C_2 is zero, B has its maximum or minimum value.

It has been shown that self induction opposes an increasing current and helps a diminishing

* A similar curve was shown, fig. 51, in the previous article.

one; it follows, therefore, that the curve B is exactly a quarter phase behind C_2 and E_2.

If we suppose the machine M_1 to be replaced by the secondary coil, *s*, fig. 56, of a transformer, the curves in figure 55 will now serve for the secondary circuit of the transformer system shown in figure 56.

Fig. 56.

Since the resistance of the secondary circuit has been assumed to be 1 ohm, if there were no self induction in *b* the curve S would represent the current flowing at any instant, as well as the E.M.F. of the secondary coil. The current could, however, be reduced to its former value by throwing extra resistance into the circuit; but although the curve for the current would still be shaped like C_2, in the figure, its position would be shifted, as it would then cut O X in the same points as S does. When the current is diminished by the introduction of resistance, heat is generated in that resistance and power absorbed; we have seen that the current can also be diminished to the same extent, not by increasing the resistance of the circuit, but by shaping it so as to introduce the necessary amount of self-induction; it is, therefore, sometimes erroneously supposed that the "self-induction" will absorb the same amount of power as the "resistance" that would have to be employed to achieve the same object.

The power at any instant is measured by the product of the number of volts into the number of amperes, or, in fig. 55, by the product of the corresponding ordinates of C_2 and B. Between O and x_1 these products are negative, the cutting into the coil of the lines of force sets up an E.M.F. opposing the current, and the coil absorbs work, but between x_1 and x_2 these products are positive, though of the same numerical value for the same value of C_2, hence from x_1 to x_2 the lines of force in cutting out of the coil put back into the circuit exactly as much work as it absorbed between the points O and x_1. The difference between the action of resistance and self-induction may otherwise be stated in this way:—Resistance absorbs electrical energy, both while the current is increasing and while it is diminishing; the energy thus absorbed is returned as heat energy to the atmosphere and surrounding bodies. Self-induction absorbs electrical energy while the current is increasing; the energy thus absorbed is returned as electrical energy to the circuit while the current is diminishing, and as a net result no electrical energy is taken from the circuit. From these causes, "choking coils," that is, coils with a large co-efficient of self-induction, are used for reducing alternating currents, instead of wasteful resistances.

Passing on now to the consideration of the primary circuit, identically the same lines of force which set up E.M.F. in the secondary coil, *s*, fig. 56, also produce a corresponding E.M.F. in *p*, the primary coil; indeed, these lines are the connecting link between the two circuits. If N and *n* are the number of turns of wire in

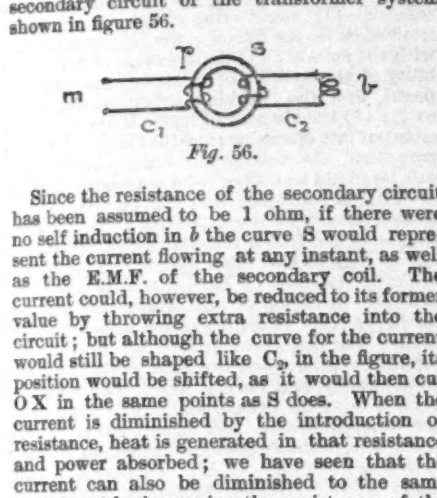


Fig. 57.

the primary and secondary coils respectively, reproduce as P, fig. 57, the curve S, fig. 55, multiplying the ordinates, however, by the constant $\frac{N}{n}$. A new diagram is used for the primary circuit, to avoid confusion.

The curve P now shows the E.M.F. in the primary coil at any instant; it must be noted P indicates, not the flux of lines through the core of the transformer, but the rate at which they are changing, and a curve showing the actual value of the flux will be one which is a quarter phase in advance of P. Calculate the value of the flux from the expressions given in the last article,* and draw the flux curve F on a scale such that the flux produced by one ampere in the primary coil is represented on the same scale as one ampere. Now, the magnetisation of the core is due to the algebraic sum of the ampere turns in both *p* and *s*. Imagine, for the purposes of construction, the ampere turns in *s* transferred into *p*; this we can do by multiplying the ordinates of C_2, fig. 55, by $\frac{n}{N}$, and tracing the dotted curve C'_2, fig. 57, to represent the equivalent current in the primary coil. But F may be regarded as being produced by the sum of the real current in the primary circuit, and this fictitious current C'_2; subtract, therefore, C'_2 from F, and we obtain C_1, the actual current flowing in the primary circuit.

Again, to avoid drawing a separate curve, assume the resistance of the primary circuit, like that of the secondary, to be 1 ohm, then E_1, the curve for the resultant E.M.F. producing current, is coincident with C_1. But E_1 is the sum of P and M, representing the E.M.F. of the machine. Hence M is obtained by subtracting P from E_1.

Starting from the machine: it produces an electromotive force, M, the current from it experiences an electromotive force, P, lagging considerably behind it, in the primary coils of the transformer, the two combined, E_1, being the actual electromotive force which determines the primary current, C_1. The varying lines of force in the case of the transformer produce the electromotive force, S, in the secondary coils, and the secondary current, C_2, together with C_1, determine both P and S. The current in the secondary circuit sets up an electromotive force, B, due to self induction in the external circuit, and this, together with S, determines E_2, the actual electromotive force which causes the current, C_2, to flow.

Owing to the size of the figures, 57 and 55, it has been impossible to draw them to scale; M is, as a rule, more than 100 times higher than S, and the other curves assume corresponding proportions. The object, however, of these figures is to show the general positions of the curves relatively to one another, and the methods of drawing them.

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

8,852, Wood Mosaic or Parquetry. F. F. Faulkner.

This invention provides an improved material for covering floors, walls, &c., with wood mosaic or parquetry work, or imitations thereof, without the trouble and expense due to the special preparation of the floor or alteration of the doors or other parts of the rooms because of the extra thickness of the parquetry work. The work is made in thin layers like veneer, and backed with canvas, and then laid on and cemented down in much the same manner as veneer is laid.

8,914, Flush Bolts. A. G. Tonks and F. R. Baker.

This patent relates chiefly to improvements in the manufacture. The cases or bodies in which the bolts slide are made of a trough or channel form, the trough receiving the thumb-pieces of the bolts. The cases may be stamped out of one piece of metal, and afterwards shaped for use.

13,496, Sanitary Pipes. J. P. Baylis.

The pipes which are the subject of this patent are made with an invert shoulder at the socket-end of the pipe, and the spigot end of the adjoining pipe is bedded therein. This causes the pipes to be laid with a true gradient. It is said that pipes as at present made and laid never have a true gradient, the spigot of the pipe always resting on the flange and causing a difference of level of pipes at every joint, and the joints at inverts can never be properly clayed or cemented, thereby leaving an open space at inverts, allowing the draining of water out of the land to get into the pipes.

18,003, Fastening for Doors and Windows. W. Bailey.

According to this invention, a circular plate or segment of metal is let into the floor, or let into the frame of the door or window. A pin or bolt at the end of a rod, controlled by the latch or lock, slips into holes in this segment, and allows the door to be held securely fast in any position.

18,323, Sea-walls, &c. D. Nicoll.

This specification relates to an improvement in the form of slabs or blocks of concrete previously patented. The blocks are moulded while in a plastic condition, and perforated by an iron column or columns when they are required to be extra strong. This also prevents the blocks from shifting from the tenon and mortise formation provided for the completion of the structure.

1,960, Door-plates. F. Boffa.

By this invention, zinc door-plates are cast with the number plainly shown in the centre, and around the border inside is formed in raised letters the name of the street or square, to facilitate reference.

NEW APPLICATIONS FOR PATENTS.

April 21.—5,995, J. Goodman, Wash-out Closets.

April 22.—6,063, W. Silcock, Fastenings for Windows.—6,080, J. Ward and C. Griffiths, Water-tap Filter.—6,086, E. Edwards, Supporting Windows and other Sashes.—6,088, E. Brook, Kilns.—6,089, J. Eckersley and Others, Discharge Valve Apparatus for Water-closets, &c.—6,137, S. Pitt, Raising and Lowering Window-sashes, &c.

April 23.—6,147, A. Drummond, Glazing Structures.—6,151, W. Clark, Stoves and Fireplaces.—6,171, J. Montgomerie, Scaffolding.—6,174, W. Thomson, Door Knobs and attaching same to Spindles.—6,183, F. & A. Widmer, Flushing Cisterns, &c.—6,187, A. Overend, Greenhouses, &c.—6,196, W. May, Glazed Bricks and Tiles.

April 24.—6,225, T. Street, Flushing Sewers and Drains.—6,231, A. Fielding, Ovens or Kilns.—6,937, T. Jones, Window Sashes, &c.—6,265, C. Orr, Door-closing Apparatus.

April 25.—6,288, W. Tanner, Domestic Fireplaces.

April 26.—6,358, T. Meggeson and J. Hadfield, Chimneys, Chimney-tops, and Ventilating Buildings.

PROVISIONAL SPECIFICATIONS ACCEPTED.

3,221, W. Hawkins, Flushing Apparatus for Water-closets.—3,418, J. Dean, Water-closets.—3,513, A. Clark, Fanlight Fastener and Opener.—3,763, H. Horsey, Glazing Windows, &c.—3,798, E. Cammiss, Brick Moulds or Dies.—3,974, J. Hart, Nails, &c.—4,069, W. Conway, Brick for building purposes.—4,462, J. Bartlett, Ventilators.—5,096, O. Wagner and E. Howard, Window Fastener.—5,118, H. Besson, Bevelling Glass.—5,129, J. Plumridge and others, Band Saw Guides.—5,475, A. Booth, Sawing Machines.—5,544, J. Pride, Cowl or Ventilator.—5,581, G. Skolsey, Kilns.—5,606, H. Marsden, Nails.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to Opposition for Two Months.

3,758, W. Dowland, Plane-iron for Carpenters.—7,001, B. Mitchell, Securing Doors in any desired position when open.—8,111, W. Hassall, Fire-places for Heating Pottery, &c.—4,219, G. Engel, Decorating Doors, &c.—4,678, H. Hinckley, Indicators for Doors.

RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

April 16.—By WYATT & SON (at Chichester).

Chichester—F. house and shop in George-st.	£145

April 22.—By WILKINSON, SON, & WELCH (at Brighton).

Findon, Sussex—The f. residence "Homecroft," and 4 acres	1,910
F. cottage and 1a. 1r. 25p.	270
Land, 41a. 0r. 8p., in lots, f.	1,290

April 23.—By H. SCRUTON.

Clapton, Chatsworth-rd.—F.g.r. of £19, reversion in 84 yrs.	475
Blurton-rd.—F.g.r. of £46, reversion in 83 yrs.	810

By SIMMONS & SONS.

Henley-on-Thames, near—Two plots of f. land	430
Caversham—Two plots of f. land	860

By WALFORD & WILSHIN.

Beckenham—77, Cope's-rd., u.t. 75 yrs., g.r. £6. 10s., r. £75	1,000
King's Hall-rd.—The residence "Ardwell," u.t. 74 yrs., g.r. £6	485

By H. V. CHEW.

Poplar—14 to 17, Stattendale-rd., u.t. 52 yrs., g.r. £16	250
1 to 4, Stewart-ter., u.t. 56 yrs., g.r. £16, r. £72. 12s.	230

By NOKES & NOKES.

Islington—45, Freeling-st., u.t. 54 yrs., g.r. £6	200
Finsbury-park—77, Lothair-rd. North, u.t. 87 yrs., g.r. £6. 6s.	215

APRIL 29.—By W. LEVENS.

Beckenham, The Avenue—"Downs House," and 2½ a., u.t. 74 yrs., g.r. £58	1,100

By E. HOLSWORTH.

Stoke Newington—152, Evering-rd., u.t. 90 yrs., g.r. £8. 10s.	525

By EASTMAN BROS.

Forest Hill, Tyson-rd.—"Tyson House," u.t. 80 yrs., g.r. 16. 10s.	1,750
Dartmouth Park—"Brunswick House," u.t. 70 yrs., g.r. £21	400

By DYER, SON, & HILTON.

Blackheath—26, Kidbrooke-gr., u.t. 74 yrs., g.r. £2	2,700

By FURBER, PRICE, & FURBER.

Regent's-park—16, Chalcot-cres., u.t. 61 yrs., g.r. £9. r. £46	400
Dorset-sq.—46, Balcombe-st., u.t. 30 yrs., g.r. £11, r. £60	600

* The maximum height of a curve of sines is $\frac{\pi}{2}$ times its mean height.

St. John's-wood—20 and 22, Ordnance-rd., u.t. 45 yrs., g.r. £16, r. £82 ..... £765
Kentish Town—12, 13, and 14, Castle-pl., u.t. 45 yrs., g.r. £13. 10s., r. £67 630
Islington—43, College-st., u.t. 25 yrs., g.r. £7, r. £32 210
Westbourne-grove—2 to 8 (even), Chepstow-pl., u.t. 53 yrs., no g.r., r. £176 2,400
Notting-hill—75, Clarendon-rd., u.t. 46 yrs., g.r. £12. 10s., r. £55 375

By DERENHAM, TEWSON, & CO.

Euston-rd.—Nos. 251 and 253, and 7, Beaumont-pl., f. 9,500
Tufnell-park—20 and 28, St. George's-avenue, u.t. 77 yrs., g.r. £14. 14s., r. £96 1,025
54, Huddleston-rd., u.t. 77 yrs., g.r. £7, r. £48 .. 455
Brighton, Dyke-rd.—No. 2, Belmont, f., r. £80 .. 1,350
No. 3, Belmont, f., r. £161 2,500
Nos. 5 and 6, Belmont, f., r. £175 p.a. 3,000

APRIL 30.—By H. DANN.

South Darenth, Kent—F. residence, and 11 a. 2 r. 39 p. 3,200
A plot of f. land, 1 a. 0r. 36 p. 200
A plot of f. land, 2 a. 1 r. 30 p. 200

By R. TIDEY & SON.

Kingsland—1 and 3, Buckingham-rd., u.t. 27 yrs., g.r. £9, r. £70 675
41 and 49, Englefield-rd., u.t. 31 yrs., g.r. £7. 10s. 485
Hoxton—74 and 76, De Beauvoir-cres., u.t. 13 yrs., g.r. £5. 2s., r. £56 150

By W. N. WILLOUGHBY.

Bickley, Southborough-rd.—"Home Lea," f., r. £110 p.a. 2,200

By FLOOD & SONS.

Paddington—18, 19, and 20, Harrow-st., u.t. 29 yrs., g.r. £54, r. £90 380

By ARBER, RUTTER, & WAGHORN.

Paddington—1, Beaumont-st., u.t. 28 yrs., g.r. £15, r. £90 825

By F. J. BISLEY.

Deptford—6 and 7, Windmill-la., u.t. 43 yrs., g.r. £4, r. £45. 10s. 300

By ELLIS, MORRIS, SUTHERLAND, & CO.

Clapton—Residence, "Helstonleigh," u.t. 92 yrs., g.r. £6. 6s. 370
Lewisham—50, Breakspear-rd., u.t. 84 yrs., g.r. £11 1,215

By DEATH & SON.

Ashington, Sussex—"Church Farm," 156a. 1r. 21p., f. 3,500

MAY 1.—By REYNOLDS & EASON.

East Ham—5, Grove-villas, u.t. 37 yrs., g.r. £3 .. 250
Brixton—28, Anstey-rd., u.t. 63 yrs., g.r. £7, r. £32 330

By NEWBON & HARDING.

Anerley—7, Station-rd., f., r. £35 335
Hornsey—17, Westfield-rd., f. 400
Islington—18, Copenhagen-st., f., r. £45 480
Notting-hill—29, 39, 41, and 43, Rackham-st., u.t. 84 yrs., g.r. £28, r. £157 700
Holloway—1, 2, and 3, Manor-mews, u.t. 57 yrs., g.r. £2, r. £90 280

By MARLER & BENNETT.

Chelsea—6 to 9, Little Smith-st., u.t. 3 yrs., g.r. £45 75

By FOSTER & CRANFIELD.

Streatham, High-st.—"Gleneldon House," u.t. 75 yrs., g.r. £36. 1,800

MAY 2.—By HORNE, SON, & EVERSFIELD.

Marylebone—51 and 52, Crawford-st., u.t. 17 yrs., g.r. £70, r. £160 500
Peckham—5 and 6, Sturdy-rd., u.t. 75 yrs., g.r. £8, r. £45. 10s. 300

By BEARD & SON.

Bayswater—18, St. Stephen's-rd., u.t. 65 yrs., g.r. £15 850
Paddington—7, Hasborough-st., u.t. 68 yrs., g.r. £7, r. £60 535

[*Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; yd. for yard, &c.]

MEETINGS.

SATURDAY, MAY 10.

Royal Institution.—Dr. Charles Waldstein on "Recent Excavations in Greece." I. 3 p.m.

MONDAY, MAY 12.

Surveyors' Institution.—Mr. R. F. Grantham on "The Encroachments of the Sea on some parts of the English Coast, and the Best Means of Preventing It." 8 p.m.

TUESDAY, MAY 13.

Royal Institution.—Mr. Louis Fagan on "The Art of Engraving." II. 3 p.m.

Society of Arts (Applied Art Section).—Professor W. C. Roberts-Austen, F.R.S., on "The Use of Alloys in Art Metal-Work." 8 p.m.

Institution of Civil Engineers.—(1) Further discussion on Mr. S. W. Barnaby's paper on "The Screw-Propeller." (2, time permitting) Paper on "The Keswick Water-Power Electric Light Station," by Messrs. W. P. J. Fawcus and E. W. Cowan. 8 p.m.

WEDNESDAY, MAY 14.

The Royal Society.—Conversazione. 9 p.m.

Society of Arts.—Dr. J. A. Fleming, M.A., on "Professor Elihu Thomson's Electro-Magnetic Induction Experiments." 8 p.m.

THURSDAY, MAY 15.

Royal Institution.—Professor Dewar, M.A., F.R.S., on "Flame and Explosives." II. 3 p.m.

Society for the Encouragement of the Fine Arts.—Lecture by Professor Hodgetts.

Institution of Electrical Engineers.—8 p.m.

Society of Arts (Foreign and Colonial Section).—Mr. C. Washington Eves on "Jamaica and its Forthcoming Exhibition." 5 p.m.

Society of Arts.—Mr. Lewis F. Day on "Design Applied to Wood-Carving." III. 8 p.m.

FRIDAY, MAY 16.

Architectural Association.—(1) Election of Officers. (2) Special Business Meeting (for members only) to consider the Report of the Special Committee on Education, &c. 7.30 p.m.

Royal Institution.—Professor R. Meldola, F.R.S., on "The Photographic Image." 9 p.m.

SATURDAY, MAY 17.

Royal Institution.—Dr. Charles Waldstein on "Recent Excavations in Greece." II. 3 p.m.

Association of Municipal and Sanitary Engineers and Surveyors.—Midland Counties' District Meeting at Hereford.

Miscellanea.

Breakwater Construction.—At a meeting of the Society of Engineers, held at the Town-hall, Westminster, on Monday evening, May 5, Mr. Henry Adams, President, in the chair, a paper was read by Mr. F. H. Cheesewright, Assoc.M.Inst. C.E., on "Breakwater Construction." The author touched upon the origin of breakwaters, showing that the earliest system employed in their construction is virtually the system in use at the present day. He then described some of the modifications that have taken place, and briefly demonstrated the inefficiency of this system by pointing out some of its most salient defects. This was followed by a short descriptive account of some of the typical breakwaters of the world, both at home and abroad, with a view to proving that even the best-constructed leave a great deal to be desired. Some expert evidence before Select Committees of the House of Commons was quoted as a further proof that up to the present day no perfect breakwater has been constructed, and that improvements in the direction of obtaining a vertical wall structure would lead to the best form of breakwater. The author then went on to show that all the suggestions of these eminent experts are embodied in the Lewthwaite System, which he fully described. It is claimed for this system that it produces a perfect vertical wall on any bottom; that it possesses perfect continuity, that most desirable of qualities in a breakwater; and that in cost it is cheaper by three-fourths than any other known system. In conclusion, the author pointed out the possibilities that lie in the adoption of this new system, not only in the construction of breakwaters, but also for the erection of deep-sea semaphores, probably the complete suppression of light-ships, certainly the protection of our coast lines from the encroachments of the sea, and the erection of sea walls and docks. He believed that its utility for national purposes was very great in the construction of works which have hitherto been impossible, as, for instance, fortifying such places as Bombay, and constructing a harbour of refuge at Dover, the latter being a work which has defied the ingenuity of the greatest experts in breakwater construction.

Competition: Worcester Victoria Institute.—Mr. Waterhouse, R.A., the assessor appointed by the Corporation to advise them in their choice of plans for the Victoria Institute buildings, has completed his examination of the sketch plans submitted in the first competition, and selected six. Sixty-eight architects in all sent in plans, which were hung in the Council Chamber of the Guildhall for inspection by Mr. Waterhouse. The six selected are Messrs. John W. Simpson and E. J. Milner-Allen, Strand, London; Messrs. Smith, Woodhouse, and Willoughby, Manchester; Messrs. Theo. Moore and W. Henry White, Mile-End-road, London; Messrs. S. Salter and Adams, Russell-square, London; Messrs. F. C. Ryde and Bedford, Great George-street, Westminster, London; and Messrs. Walter Cook and G. H. Grocock, Cardiff. By the conditions of the competition 300*l.* is divisible among these six architects or firms, and they will be requested to submit detailed plans and specifications in a second competition, the date for completing these being fixed as July 31. The Council, guided by Mr. Waterhouse, will then make the final choice of plans for the buildings. Mr. Samuel Smith, the secretary, writes to the local papers:—"On behalf of my committee, I have asked the whole of the unsuccessful architects engaged in the first competition for permission to publicly exhibit their plans. A large proportion decline to give permission, and many who do give it, attach such conditions that it will be impossible to hold a satisfactory exhibition. Under the circumstances, therefore, the committee have no alternative left but to regretfully return the plans at once to their authors. In the final competition, however, care will be taken to exhibit to the citizens the whole of the plans then sent in."

Central London Electric Railway.—At the twelfth sitting of the Committee on this Bill, on Tuesday, Mr. Pember, Q.C., proceeded to reply upon the whole case on behalf of the promoters. He said that there had been six points put forward by the opponents of the scheme,—(1) engineering risks; (2) injury to tradesmen on the line of route; (3) interference with the subsoil; (4) the question of the feasibility of the system of electrical traction proposed, and the working expenses incidental to it; (5) the chances of traffic if the line were once put into operation; and (6) the plea for postponement. As regards the damage to the subsoil, he would be willing to have a clause inserted in the Bill providing that the owners of any subsoil should be compensated under the 68th section of the Lands Clauses Consolidation Act, and as regards the other points, judged by the ordinary standard of Parliamentary proof, the evidence in favour of the scheme and the probabilities of its ultimate success were unusually high. The opposition to the scheme was intended to bring about the utter waste of all the time, money, and energy which had been expended upon its promotion, to say nothing of the disappointment and mortification to the promoters, or the discouragement which, by such action as rejecting the Bill, Parliament would throw upon legitimate enterprise directed to satisfy great public needs. The Committee, after having deliberated in private for about half an hour, found that the preamble had been proved, on the understanding that (1) a compensation clause should be inserted in the Bill similar to the one in the Midland Railway (Additional Powers) Bill, 1881; (2) that stringent clauses should be inserted affording every opportunity to the Engineers of the Corporation of London and of the County Council to inspect the works during their progress, lest any possible damage should be done to the sewers; (3) that the estimated capital of the company should be somewhat reduced; and (4) that until the City and Southwark Subway had been opened and used by the travelling public for a certain time no prospectus should be issued or capital raised by the Central London Company. The Committee then adjourned until Tuesday, the 13th inst., for the discussion of clauses.—*Times.*

Properties for Sale.—1. Armathwaite Hall, covering nearly 2,000 acres, situated upon the banks of the river Eden, and lying in Wetheral parish, five miles south-east from Carlisle. Near to the priory ruins are some curious caves, known as St. Constantine's cells, excavated out of the cliff some 40 ft. above the river; being somewhat similar to the artificial caves at Hawthornden, on the North Esk. The parish church of Holy Trinity was restored in 1872–3, at the cost of the Dean and Chapter of Carlisle, under directions of Mr. R. J. Withers, architect. It comprises a chapel, which contains many monuments to the Howards of Corby. 2. The Calderwood Estate, in Lanarkshire, to which we adverted in a "Note" on September 1, 1888, has again been placed in the market, and will be put up for sale by public roup, at Edinburgh, on June 11 next. Long Calderwood is famed as being the native place of William Hunter and his brother John, anatomists. Near to Calderwood House are Bothwell Brig, Drumclog, and other scenes whose names are familiar to readers of "Old Mortality."

Slow-Combustion Stoves.—From that well-known firm Messrs. Barnard, Bishop, & Barnards (Limited), Norwich, we have received their illustrated price-list of registered slow-combustion stoves. Stoves of this type have many advantages, and in this list they are shown in every conceivable variety, and in forms suited to widely-differing needs. We may specially mention "The Norfolk" stove, which, though constructed on "slow-combustion" principles, is so arranged that air can be admitted from below if a more rapid combustion be required. It is provided with a fluted firebrick back, which overhangs the fire, and by becoming heated helps to greatly diminish the amount of smoke which passes up into the flue. It and the catalogue generally (which includes wood and marble fenders, tile hearths and splays, and mantels and overmantels in wood and cast-iron) are well worth the notice of architects, builders, and building-owners.

The A.A. Lyric Club.—*À propos* of our notice in last week's issue, we are asked to note that the 22nd inst. is not a Monday, but a Thursday.

International Exhibition of Mining and Metallurgy, London, 1890.—An International Exhibition of Mining and Metallurgy on an extensive scale, the result of a proposal which emanated from the *Mining Journal*, will be held during the forthcoming summer at the Crystal Palace, Sydenham. It has received most encouraging and widespread support. The list of Honorary Vice-Presidents includes many distinguished names, amongst them Sir Frederick Abel, C.B., Sir Alexander Armstrong, K.C.B., Sir James Kitson, Bart. (President of the Iron and Steel Institute), Sir John Lubbock, Bart., Sir John Pender, Sir Edward J. Reed, Sir Warington W. Smyth, F.R.S., Sir H. Hussey Vivian, Bart., Professor W. Chandler Roberts-Austen, F.R.S., and many others. Mr. W. Pritchard-Morgan, M.P., who has been so closely identified with the revival of gold-mining in Wales, presides over the Executive Council, which consists of a number of gentlemen well known in connexion with mining, metallurgical, and allied interests; while amongst the hon. members figure the names of scores of gentlemen familiarly associated with the financial, industrial, and scientific aspects of mining and metallurgical enterprise. The scope of the exhibition will be sufficiently wide to enable a most valuable and interesting display to be made. Great advances have of late years taken place in mining and metallurgical practice, and no wholly suitable opportunity has presented itself, or been taken advantage of, for adequately illustrating the degree of progress which has been attained. This remark especially applies to metalliferous mining, and to the economical treatment of refractory ores for the recovery of precious metals. The exhibition will open on July 2, and close on September 30, and, besides several features of special attraction, important collections of exhibits are expected from the Colonies and foreign countries. The Honorary Secretary is Mr. Geo. A. Ferguson, Editor of the *Mining Journal*.

Association of Municipal and Sanitary Engineers and Surveyors.—A Midland Counties' District meeting of this Association is to be held at Hereford on Saturday next, May 17, 1890. Mr. J. Parker, the City Surveyor, will read a paper on Hereford Sewage and Municipal Works, and the new sewage outfall works and the waterworks will be visited. It is announced that the annual general meeting will be held in Liverpool, on Thursday, Friday, and Saturday, the 26th, 27th, and 28th of June next.

Frankfort-on-the-Main.—It has been decided to erect an equestrian statue in this town in memory of the deceased founder of the new German Empire at a cost of about 10,000*l*. A competition for a design will be opened, and three prizes of 200*l*. each will be awarded.

PRICES CURRENT OF MATERIALS.

TIMBER.	£.	s.	d.	£.	s.	d.
Greenheart, B.G. ....ton	6	15	0	7	5	0
Teak, E.I. ....load	11	0	0	14	0	0
Sequoia, U.S. ....foot cube	0	2	3	0	3	0
Ash, Canada ....load	3	0	0	4	5	0
Birch ,, ...load	3	0	0	5	0	0
Elm ,, ...load	3	10	0	4	15	0
Fir, Dantsic, &c. ....load	2	0	0	3	10	0
Oak ,, ...load	2	10	0	4	10	0
Canada ....load	5	10	0	6	10	0
Pine, Canada red ....load	2	10	0	3	10	0
,, yellow ....load	2	0	0	5	5	0
Lath, Dantsic ....fathom	5	0	0	6	0	0
St. Petersburg ....load	5	0	0	7	10	0
Wainscot, Riga, &c. ....log	0	0	0	0	0	0
Deals, Finland, 2nd and 1st. std. 100 ....load	8	0	0	11	0	0
,, ,, 4th and 3rd ....load	7	0	0	7	10	0
Riga ....load	7	0	0	8	10	0
St. Petersburg, 1st yellow ....load	10	0	0	14	0	0
,, 2nd ,, ...load	8	0	0	10	0	0
,, white ....load	6	10	0	10	0	0
Swedish ....load	7	10	0	15	10	0
White Sea ....load	8	0	0	17	0	0
Canada, Pine, 1st ....load	15	0	0	26	0	0
,, ,, 2nd ....load	10	10	0	17	0	0
,, ,, 3rd, &c. ....load	7	0	0	10	0	0
,, Spruce, 1st ....load	8	15	0	11	0	0
,, ,, 3rd and 2nd ....load	6	15	0	8	10	0
New Brunswick, &c. ....load	6	0	0	8	10	0
Battens, all kinds ....load	6	0	0	16	0	0
Flooring Boards, sq., 1 in., prepared, First ....square	0	11	0	0	14	0
Second ....square	0	8	0	0	10	6
Other qualities ....square	0	6	0	0	7	9
Cedar, Cuba ....foot	0	0	4	0	0	4½
Honduras, &c. ....foot	0	0	4	0	0	4½
Mahogany, Cuba ....foot	0	0	4½	0	0	6½
St. Domingo, cargo average ....foot	0	0	4½	0	0	6½
Mexican ,, ...foot	0	0	4½	0	0	6½
Tobasco ,, ...foot	0	0	5½	0	0	6½
Honduras ,, ...foot	0	0	5½	0	0	6½
Box, Turkey ....ton	4	0	0	13	0	0
Rose, Rio ....ton	15	0	0	20	0	0
Bahia ....ton	14	0	0	18	0	0

TIMBER (*continued*).	£.	s.	d.	£.	s.	d.
Satin, St. Domingo ....foot	0	0	6	0	1	3
Porto Rico ....foot	0	0	10	0	1	3
Walnut, Italian ....foot	0	0	4½	0	0	7
METALS.						
IRON—Bar, Welsh, in London ton	6	17	6	8	0	0
,, ,, at works in Wales ton	6	10	0	7	0	0
,, Staffordshire, in London ton	8	0	0	8	10	0
COPPER—British, cake and ingot ton	54	0	0	54	10	0
Best selected ton	56	0	0	57	0	0
Sheets, strong ton	62	0	0	0	0	0
Chili, bars ton	49	15	0	0	0	0
YELLOW METAL ....lb.	0	0	5¼	0	0	0
LEAD—Pig, Spanish ....ton	13	2	6	0	0	0
English, com. brands ton	13	5	0	0	0	0
Sheet, English, 3 lbs. per square foot and upwards ton	15	0	0	0	0	0
Pipe ton	15	10	0	0	0	0

METALS (*continued*).	£.	s.	d.	£.	s.	d.
TIN—						
Straits ton	93	0	0	0	0	0
Australian ton	93	0	0	0	0	0
English Ingots ton	90	0	0	0	0	0
OILS.						
Linseed ....ton	23	15	0	24	0	0
Cocoanut, Cochin ton	28	15	0	29	0	0
Cocoanut, Ceylon ton	25	10	0	0	0	0
Palm, Lagos ton	24	15	0	0	0	0
Rapeseed, English pale ton	32	0	0	0	0	0
,, brown ton	30	10	0	0	0	0
Cottonseed, refined ton	22	5	0	0	0	0
Tallow and Oleine ton	21	0	0	40	0	0
Lubricating, U.S. ton	5	10	0	6	0	0
,, refined ton	7	0	0	12	0	0
TAR—Stockholm ....barrel	1	5	6	0	0	0
Archangel ton	0	16	9	0	0	0

CONTRACTS AND PUBLIC APPOINTMENTS.

Epitome of Advertisements in this Number.

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.	Page.
Paving Works, &c.	East Ham Local Board	W. H. Savage	May 13th	ii.
Painting and Repairing Works	London County Council	*Official*	May 17th	xi.
Supply of Kerb	Kingston-on-Thames Corporation		May 19th	xii.
Sundry Repairs and Whitewashing	Central London Sick Asylum District	do.	do.	ii.
Brick Water Tower for Waterworks	Sandbach Local Board	W. Wyatt	do.	xi.
Erecting Gallery in Swimming Bath	Whitechapel B. & W. Committee	B. J. Capell	do.	xii.
Ironwork and Steel Girders	Manchestr Wtrwks Com.	G. H. Hill	May 20th	ii.
Roadmaking and Paving Works	Tottenham Local Board	J. E. Worth	do.	ii.
Two Staircases at Workhouse	Bethnal Green Guardns	A. & C. Harston	do.	ii.
Works at Cemetery, Ilford	Com. of Sewers	*Official*	do.	ii.
Erection of Schools	Acton School Board	E. Monson, Jun.	May 22nd	xi.
Alteration to School Buildings, Hanwell	Cent. Lond. Sch. Dist.	Jarvis & Son	May 24th	xii.
Poor Asylum, Isle of Man			do.	ii.
Works and Materials, Liverpool Sub-Dist.	War Department	*Official*	May 26th	ii.
Additions to G. P. O., West	Com. of H.M. Wks. &c.	do.	May 27th	xi.
Re-building Viaducts, &c., South Devon	G. W. R. Co.	do.	May 28th	ii.
Construction of Tunnel, &c. do.	do.	do.	do.	ii.
Erection of Board School	Reading School Board	W. Ravenscroft	June 3rd	xii.
Making-up Roads	Wanstead Local Board	*Official*	June 6th	xii.
Barrack Huts and Quarters, Shorncliffe Cmp	War Department	do.	Not stated	ii.
Painting, &c., Works, Aldershot District	do.	do.	do.	ii.
Painting Works, Liverpool Sub-District	do.	do.	do.	ii.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.	Page.
Surveyor and Inspector of Nuisances	Fareham Local Board	£130	May 21st	xvi.
Inspector of Pavements	Com. of Sewers	£150	May 23rd	xvi.

TENDERS.

[Communications for insertion under this heading must reach us *not later than* 12 *noon on Thursdays.*]

CHATHAM.—For enlarging and restoring St. Paul's Church, Chatham. Mr. John Drake, architect, Rochester. No quantities :—

C. Fowle, Chatham	£1,399 10 0
R. G. Sampson, Chatham	1,376 0 0
Snow, New Brompton	1,287 0 0
C. E. Skinner, Chatham	997 0 0
Naylar & Son, Rochester (accepted)	986 0 0

CRICKLEWOOD.—For shop and premises, Edgware-road, Cricklewood, for Mr. Walter Ginger. Mr. T. F. Shaw, architect, Harlesden :—

Yerbury	£3,634 0 0
Fordham	3,550 0 0
Neal	3,334 0 0
Tennant	3,291 0 0
Julian	3,128 0 0
Oldrey	2,995 0 0
Allen	2,950 0 0
Cross (late)	2,830 0 0
Pryor (accepted)	2,750 0 0

GREAT BADDOW (Essex).—For alterations and additions to Grove House, Great Baddow, Essex, for Mr. S. Hall Goodhart. Mr. A. H. Attwater, architect, Windsor :—

C. F. Kearley, Kensington (accepted)	£648 0 0

HAM (Surrey).—For decorations at Latchmere House, Ham, Surrey, for Mr. Joshua Field. Messrs. Wylson & Long architects, 15, King William-street, Strand :—

Addiscomb & Harris	£341 0 0
Kearley	273 0 0
Robert Eddie	248 10 0

HENDON.—For the pulling-down and rebuilding of the "Bull" Inn. Mr. Hardwicke Langston, architect :—

J. Allen & Sons, Kilburn	£3,136 0 0
Burton & Co.	2,497 0 0
H. B. Oldrey, Kilburn	2,350 0 0
T. Nye	2,150 0 0

KINGSTON.—For building villa residence. Mr. Albert E. Symes, architect, 71, Brocklehurst-street, New-cross, S.E. :—

T. N. Knight (accepted)	£615 0 0

LIMPSFIELD.—For cottage at Limpsfield, Surrey, exclusive of stabling and outhouses, for Mr. Wm. R. Bellars. Messrs. Brown & Pritchett, 39, Theobald's-road, W.C., architects :—

T. Loveland, Limpsfield	£1,571 17 2
J. & G. Ward, Warlingham	1,294 0 0
J. Watts, London*	1,262 0 0

* Accepted.

LONDON.—For providing and fixing fittings and furniture for the new Town-hall and offices, Fulham-road. Mr. George Edwards, F.R.I.B.A., architect :—

Atkinson & Co.	£2,830 14 0
R. Bowman & Co.	2,797 0 0
Stimpson & Co.	2,730 0 0
B. Cohen & Sons	2,706 15 6
C. & R. Light	2,541 0 0
John Barker & Co.	2,500 0 0
Oetzmann & Co.	2,487 0 0
Scharien & Co.	2,460 0 0
Frank Giles & Co.	2,454 0 0

LONDON.—For sundry alterations at 60, Porchester-terrace, Hyde Park, W. Messrs. N. S. Joseph & Smithem, architects, 45, Finsbury-pavement, E.C. :—

Phillipson & Son	£2,037 10 0
Vare Bros.	1,942 7 0
Bovis & Co.	1,512 0 0

LONDON.—For the erection and completion of the superstructure of business premises in Copthall-avenue, London-wall, E.C. Messrs. N. S. Joseph & Smithem, architects, 45, Finsbury-pavement, E.C. :—

Patman & Fotheringham	£2,473 0 0
Ashby Bros.	2,323 0 0

[Excavation and underpinning by N. Fortescue.]

LONDON.—For building stables and alterations and decorations to "Woodlawn," Streatham-hill, for Mr. R. Summers. Quantities by Messrs. Young & Brown, 5, Henrietta-street, Covent-garden :—

Ansell	£1,363 0 0
Gregory & Co.	1,227 0 0
Chandler	1,194 0 0
Colls	1,189 0 0
Marsland, Wandsworth (accepted)	1,177 0 0

LONDON.—For the erection of two studios, Queen's-road, St. John's Wood, for Mr. John Butler. Mr. Albert E. Pridmore, architect, 2, Broad-street-buildings, E.C. :—

Crane	£922 0 0
Saunders	892 0 0
King & Co.	861 0 0
Annan	812 0 0
Wiltshire	793 0 0
Taylor & Son	754 0 0

[Ironmongery and plumbers' work not in contract.]

LONDON.—For works to the "Euston" Tavern, Euston-road, for Mr. A. Hicks. Mr. Walter Graves, architect, Winchester House, Old Broad-street, E.C. :—

J. & S. Bowyer	£258 0 0
Pitman & Son	194 0 0
S. Shaw	185 0 0
Nightingale (accepted)	166 0 0

LONDON.—For new billiard-room and conservatory over, at Streatham House, for Mr. C. A. Kind. Mr. Walter Graves, architect, Winchester House, Old Broad-street, E.C. :—

J. & S. Bowyer, Dulwich (accepted)	£659 0 0

LONDON.—For road-making and paving works, Epirus-road, Fulham, for the Vestry of Fulham. Mr. W. Sykes, New Streets Surveyor :—

Neave & Son, Paddington	£859	0	0
Rogers, Notting Hill	769	0	0
Nowell & Robson, Kensington	720	0	0
Tomes and Wimpey, Hammersmith	629	0	0

LONDON.—For alterations to the "White Hart," Kennington, S.E., for Mr. E. Dare. Mr. Eedle, architect, 8, Railway-approach, London Bridge :—

Pritchard	£878	10	0
T. Hooper	685	0	0
J. Beale	514	0	0

LONDON.—For alterations at No. 35, Beaumont-street, W., for Miss Slodden. Mr. T. Durrans, architect :—

Parker	£495	0	0
Bovis	493	0	0
Edgar	488	0	0
Aitchison	430	0	0
Clifton (accepted)	420	0	0

LONDON.—For the construction of a beer-cellar at the Cobden Club, Kensal-road, for the proprietors. Mr. J. W. Gracie, architect, Shepherd's Bush :—

Williams & Richards	£265	0	0
Ransom & Co.	230	0	0
R. Seed	220	0	0
Scrafield	200	0	0
Sweetland	194	0	0
Oldrey (accepted)	185	0	0

LONDON.—For alterations and additions at Nos. 42 and 43, Cranbourne-street, Leicester-square, to adapt the premises for an Electric Testing Station, for the London County Council :—

W. Buckeridge, Kensington*	£694	0	0

* Accepted.

LONDON.—For alterations and additions to the General Post Office, St. Martin's-le-Grand, for H.M. Office of Works. Mr. Henry Tanner, architect :—

W. Buckeridge, Kensington*	£2,349	0	0

* Accepted.

LONDON.—For repairs and painting at London Salvage Corps Station, Commercial-road, E. :—

John Greenwood (accepted)	£376	0	0

LONDON.—For additions to 201, King-street West, Hammersmith, for Mr. C. A. Bond. Mr. William Hunt, architect, 5, York-buildings, Adelphi, W.C. :—

J. Mears	£562	0	0
C. Wall	557	0	0
S. Knight	510	0	0
J. Freeman (accepted)	463	0	0

LONDON.—For sanitary improvements at 91, Lancaster-gate, Hyde Park, W. Messrs. N. S. Joseph & Smithem, architects, 45, Finsbury-pavement, E.C. :—

Phillipson & Son	£403	15	0
Hearn & Co.	397	0	0
Vare Bros.	264	0	0

NORWICH.—For erecting Bull Close-road Girls' School, for the Norwich School Board. Mr. John H. Brown, architect and surveyor, Cathedral Offices, Norwich :—

Leggett, Yarmouth	£4,449	0	0
Pye, Norwich	3,990	0	0
Hawes, Norwich	3,890	0	0
H. Lacey, Norwich	3,885	0	0
Youngs, Norwich	3,883	0	0
Wilkin, Norwich	3,800	0	0
Searles Bros., Norwich	3,700	0	0
Chapman & Son, Norwich	3,674	0	0
Bennett (corrected), Norwich	3,642	0	0
Ellis & Betts, Norwich*	3,600	0	0
Smith & Watting, Norwich†	3,352	0	0

* Provisionally accepted. † Withdrawn.

SEVENOAKS.—For levelling, metalling, kerbing channeling, tar-paving, and the construction of sewers and storm-water drains, in Bayham-road, for the Sevenoaks Local Board. Mr. Jabez Mann, surveyor :—

Freeman, Otford, Sevenoaks	£1,034	0	0
Osenton, Westerham	1,006	0	0
Jackson, Forest Gate, E.	975	9	5
Trueman, Swanley	968	5	10
Porter, Lower Clapton, N.	859	3	11
Hudson, Crouch End, N.	829	9	9
Iles, Wimbledon*	798	6	11

[Surveyor's estimate, £819.]

* Accepted according to schedule of prices.

RIDDLESDOWN (Surrey).—For decorations, tile-hearths, parquet-flooring, &c., at "Little Roke," Riddlesdown, Surrey, for Mr. P. Castle Smith. :—

Robert Eddie, Tyndale-place, Upper-street, Islington (accepted)	£729	0	0

[Forming new cellars, &c., at schedule of prices.]

SALISBURY.—For alterations and additions to the stables and coachman's cottage, Cowesfield Dean, Salisbury, for Mr. W. Lawrence, M.P. :—

Crook & Sons, Southampton*	£1,347	0	0

* Accepted. (Lowest of five invited.)

TAVISTOCK.—For additions to Kelly College, Tavistock. Mr. H. J. Snell, architect, 8, Courtenay-street, Plymouth :—

T. Higman, Tavistock	£8 734	0	0
J. Finch, Plymouth	6,560	0	0
J. J. Marshall, Plymouth	6,555	0	0
G. Shellabear, Plymouth	6,270	0	0
J. P. Berry, Plymouth	6,220	0	0
Tozer & Son, Plymouth	5,934	0	0
Lapthorne & Goad, Plymouth	5,804	0	0
Palk & Partridge, Plymouth	5,800	0	0
Pethick Bros., Plymouth	5,744	0	0
P. Blowey, Plymouth	5,690	0	0
A. R. Debnam, Plymouth	5,640	0	0
Reed, Blight, & Co., Lim., Plymouth	5,456	0	0

THORNTON HEATH (Surrey).—For the erection of a pair of semi-detached villa residences, for Mr. Robert Allen. Mr. Thos. Moody, architect, 35, Craven-street, W.C. :—

Smith & Sons, Norwood	£2,388	0	0
J. W. Falkner, London	2,253	0	0
Smith & Bulled, Croydon	2,250	0	0
G. E. Bryan, Norwood	2,154	0	0
A. M. Deacon, Norwood	2,129	0	0
E. J. Saunders, Croydon	2,010	0	0

TODENHAM.—For new wing and alterations at Todenham, Gloucestershire, for Sir Pery Van Notten Pole, Bart. Mr. E. Guy Dawber, architect, Bourton-on-the-Hill, Moreton-in-Marsh :—

Groves, Milton-under-Wychwood	£1,388	0	0
Attwood, Brailes	1,350	0	0
Estcourt & Son, Gloucester	1,270	0	0
Wiltshire, Swindon	1,240	0	0

[Lists of tenders for works at Camberwell and Deptford inadmissible, as sender did not enclose his name.]

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